

ITEMS OF INTEREST.

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Shots from the Profession.

WOMEN IN DENTISTRY.

MRS. R. B. RAMSAY, D.D.S., PITTSBURG, PA.

It would be interesting to study the various causes that led men and women, in the industrial world, to drift apart, till each were strangers to the other's work; and why, after the lapse of centuries, they are now uniting and working side by side.

Our imagination can date the dentist back to the primitive services of herbs and teas, hot salt, and hideous extractors, available to both sexes; but while the man advanced, secured the aid of science, established colleges to propagate learning, he pronounced his work a profession, and constituted himself sole possessor and proprietor of the field; the woman continued the domestic treatment, propagated the superstitious arts, and submitted to his usurpation.

But some revolt occurred, and to-day women are given the freedom of dental colleges in America with the accompanying legal right to practice, and this privilege is mainly due to the efforts of a few noble men. Of these let me mention Professors Peirce and Truman, who, with opinions far in advance of their time, stemmed the tide of opposition (of no mean proportion, but of intelligent men whose convictions were to them strong proof of right) and with a Spartan courage persisted till they secured for women an inestimable privilege. Some day, when the full freedom of women shall be assured, the efforts of those who struggled to produce it will be a part of history.

Admitting women legally to practice is a check on the pernicious custom of the widows of dentists continuing the business, using the name and rights of the deceased, hiring incompetent men to transact the business.

Have women a right in Dental schools? It is true these colleges were founded by men, and with money belonging to men, but some women bore these men, and some women helped earn this money; and since men have gone into domestic life for new avenues of labor, it is right that women should look to other fields for her life's work.

But right or wrong women dentists are an established fact; if every college door were closed against them, there are now women and money to start other schools.

But we do not anticipate a return to the old *regime*; for after a fair trial it is conceded that the presence of women in our colleges is beneficial to the young men; they show less disposition to rudeness, profanity and indulgence in evil habits which unfit them for professional gentlemen.

The profession generally has accepted the woman gracefully, not as a necessary evil but as a power for good, knowing that the women who have joined their ranks are from a good social strata, and must eventually elevate the calling socially and professionally. Dental societies have given them a welcome and assigned them duties in public meetings. We should feel grateful to the profession for this privilege. At the door of Jefferson and the University of Pennsylvania she stands unnoticed, though holding her D.D.S. aloft and pointing to the arrangements made to admit this class on a third term, to receive the learning and benefits of M.D.

Are women an honor to the profession? Why should they not be? Those who have graduated have proved themselves apt pupils, entering the profession with an earnest endeavor to do her best. This is sure to bring esteem and success. Women are peculiarly adapted for the care, patience and delicate touch required in dental manipulations. The general public accepts the services of women. This is proven by the success of those following the business. That the women have not more fully availed themselves of the privileges is the result of long years of training called "womanly"; but this is a misnomer, for the world is ceasing to value a condition that in adversity means poverty and dependence. But women are awakening. In the Pennsylvania Dental College there are nine women enrolled this term as students. In the Philadelphia Dental College twenty-six have been graduated in the past, and in the present class there are seven enrolled and two or three others attending occasionally. The Baltimore College graduated three women and then refused further admission, nor will they to-day admit women as students. How manly.

Two of these thirty-two women graduates came from Germany, at a great expense, with attending sacrifices of leaving home and sojourning alone in a strange country. They spent the time required by our colleges, and are welcomed home with greetings of honor and respect. They practice their art proud in the title of "American Dentist"; for thus they are styled by way of honorable mention, and a dentist there ranks above a physician in social caste.

The presence of women in the dental profession is one more star in

the escutcheon of a profession that has advanced more rapidly from its birth than any other. Dentists have seemed to agree that nothing is impossible; prejudice has nowhere an abiding place. They are willing to cast out old ideas and accept new theories, put them to the test, and if good, assign them a place in the dental curriculum. Even so have they accepted women. They have extended to her the right hand of fellowship and given her a place in the front ranks.

Tell me the position of women in a nation and I will tell you the status history of that nation. The more intelligent and honored the women, the more highly civilized the nation. An ignorant and oppressed race of women are incapable of producing a race of civilized men. Women must be given her God-given privileges or the nation retrogrades.

Show me the profession that turns a deaf ear to the knockings of this embodied spirit of civilization, and I will show you a calling whose precepts and practices are but a shade from the dark ages. This 19th century, more than any in the past, is one of change,—constant, persistent change. Everything in science, religion and art are being tested. The next century will dawn on a glorious state of unity, and surely the women will be there.

TOABACCO AND ITS TOXIC EFFECTS.

DR. C. W. HUNTINGTON, WILLIAMSPORT, PA.

I present an evil which extends over the world, enslaving and blinding its votaries to its pernicious influence. It is the cause of so much disease and suffering that it should receive the condemnation of every physician and philanthropist. Yet even dentists and physicians use it. Notwithstanding their knowledge of its deleterious toxic effects they prefer to smother their convictions, and be silent to its evils, rather than abandon its use. There are some noble exceptions, who are lights in their profession, and who have the interests of their patients so at heart, they speak boldly of this relic of heathenism and blot on civilization.

Tobacco is a rank, foul weed, indigenous to tropical America. When Christopher Columbus first stepped on American soil, he found the Indians puffing the smoke of tobacco from their mouths, as though by its incense worshipping their heathen gods. Soon its seed was carried to Spain and later to France. Its cultivation spread rapidly and eventually tobacco became an article of commerce everywhere.

Like opium among the Chinese, the rapid dissemination of tobacco is undoubtedly attributable to its narcotic effect. A singular reason for its use, but I can see no other excuse for its indulgence at the present day.

Tobacco contains a large amount of nicotin, nicotianin, and nicotina. Nicotina is a colorless poisonous alkaloid, with an acrid, burning taste, diffusing through the blood with great rapidity. It is one of the most intense of all poisons, corresponding in the intensity of its action to the strongest preparation of prussic acid. Nicotianin is another violent poison evolved by its burning. Of it Dr. Wood, in the United States Dispensary observes, "it is one of the most virulent poisons known." "A drop of it in a state of concentrated solution is sufficient to destroy a dog, and small birds perish at the approach of a tube containing it. Thus the smoker takes into his system the nicotianin, the chewer the nicotina.

Administered to carnivorous animals it causes vomiting, purging, trembling, staggering, convulsions, and stupor. As to the peculiar mode of its action, physiologists are not agreed, but the nerves are probably the principle medium; still, from the many instances of death produced by application of small quantities to wounds, we are led to believe that the process is more complex. Its juice, swallowed, or by enema, and even by its application to eruptions of the skin, has caused death. Prof. Howell of Philadelphia cites the death of an infant occasioned by the application of an infusion of tobacco on the healthy breast. Its most frequent effects are languor, feebleness, relaxation of muscles, trembling of the limbs, great anxiety, and fainting. Vision is often enfeebled, the ideas confused, and the pulse lessened and weakened. The action of the lungs become labored, the surface cold and clammy, and in extreme cases there is convulsions. In excessive doses the effects are nausea, vomiting, and in some cases purging, extreme weakness and relaxation of the muscles, depression of the vascular system, convulsive movements followed by paralysis, and a kind of a torpor ending in death. Ulceration of the lips, tongue, gums, mucous membrane and cheeks, tonsils, velum, and even the pharynx often occurs. Other constitutional effects are to be found in every day practice, such as dyspepsia, vitiated taste, diarrhea, diseased liver, congestion of the brain, apoplexy, palsy, mania, loss of memory, amaurosis, deafness, nervousness, and emasculation. It has been noted that during prevalence of cholera, individuals addicted to the use of tobacco are more disposed to attacks of that disease, and generally in its most malignant and fatal form. Cancer of the lips, tongue, and throat frequently occurs among smokers, and has claimed some of the most eminent men of the world as victims. There is no more common cause for dyspepsia than the use of tobacco; nor is this surprising when we consider the immense quantity of saliva expectorated by the smoker or chewer, and still worse if it is swallowed charged with tobacco poison. A patient informs me that with him even an occasional cigar

produces a lowering of the heart's action, and a weakness of the eyes.

We hear it claimed that tobacco preserves the teeth and arrests decay. This is a falisy, and only an excuse for its use. Chewing tobacco wears the teeth down rapidly, discolours them beyond recovery, and often hides decay till it is beyond remedy; while by its use the gums are inflamed and so badly receded as to expose a large portion of the roots of the teeth. The delusion that tobacco preserves teeth, arises from the fact that it is benumbing to an exposed nerve so that aching is avoided and the patient deceived.

All the depraved, degraded, and debauched use tobacco. Not very complimentary company for respectable persons who use it.

Boys aping men, smoke and chew tobacco, and men are slaves to a boy's bad habit.

Mothers are greatly responsible, by neglect of watchfulness and good teaching. In obtaining the signatures of one hundred and fifty boys to a pledge against tobacco, I found a large percentage of them veritably little slaves to the vice, while in many cases their mothers were in total ignorance of the fact that their precious boys ever had the filthy stuff in their mouth; and this, while to me it was evident at a glance. Right here, is where the first steps are taken that lead to vice and crime of every degree.

Dr. Decaisure has observed that of thirty-eight boys, aged from nine to fifteen, who smoked tobacco, distinct symptoms were present in twenty-seven. In twenty-two there were various disorders of the circulation, palpitation, disorders of digestion, slowness of intellect, and a taste for strong drinks. In three the pulse was intermittent. In eight there was a diminution of the red blood corpuscles. In twelve there were rather frequent epistaxis. Ten had disturbed sleep and four had ulceration of the mucous membrane of the mouth, which disappeared on the disuse of tobacco.

As professional men we are brought daily into close proximity with our patients, many of whom are of too cleanly habits to tolerate personal impurity in us; our own freedom from repulsive taints, therefore, should be our constant aim. This cannot be if we pollute our breath or our clothing, or even the atmosphere of our office with the obnoxious odor of tobacco. Neither can we afford to use that which will interfere with a clear brain, a steady hand, an unimpaired vision, and a pleasant and agreeable disposition.

Cocaine-Ether.—As an obtundent, Dr. Harlan says ten grains of the alkaloid of cocaine, and ninety drops of ether, is excellent. Exposed pulps, he says, can be removed without pain after a few minutes' contact with this solution.

RETROSPECTIVE.

J. F. FRANTZ, M.D., WILMINGTON, DEL.

Though attention to the teeth as a specialty seems to have had some recognition, even in ancient times, it was left for the nineteenth century to develop for it anything like a position of credit as a department of surgery. The blacksmith, barber, and watchmaker are remembered by many persons living, as the only ones to whom the sufferer from an aching tooth could apply with hope of relief; and the process was one of muscularity rather than dexterity.

The insertion of teeth was practiced for many years in various primitive ways. The reinsertion and the transplantation of teeth are mentioned as early as 1579, by Ambrose Parke, who relates: "The loss of a tooth by a lady of quality was made good by the transplantation of one from the mouth of her waiting maid." Such operations, however, never met with general favor, because not meeting with general success, and because a transference of disease with the transplanted tooth was feared.

Wood was sometimes used as a substitute for natural teeth, being carved from a block and attached by ligatures, or bands of gold or silver. Ivory was a cheap and satisfactory substitute; and the teeth of various animals were used, though not with satisfaction.

The progress made in dentistry in this country is phenomenal. From the record of but one practicing dentist here prior to the war for independence, the list has grown rapidly, till to-day we have more than twelve thousand, and still they come by hundreds a year, as graduates from nearly twenty dental colleges and dental departments of universities throughout the Union. Twenty of the different states have passed dental laws: Alabama was the first. This was as early as the year 1841; though the present law was not passed till 1881. Georgia, Illinois, Indiana, Iowa, Kentucky, Louisiana, Maryland, Michigan, Missouri, Mississippi, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Vermont, and West Virginia have all passed laws variably efficient, and a sentiment prevails in all the other states which is likely to result in similar laws. Much has been done toward hastening legislative action in every state by the well organized and concerted action of dental societies.

In Europe, France has the credit of having made the earliest and most direct efforts for the advancement of dentistry and its recognition as a distinct profession. As early as 1580, mention is made of the admission of students in dentistry to the University of France. In 1505, it is related that a compact was entered between the physicians of Paris and the barbers, by which the latter were to receive the title of "tonsoris chirurgici" and certain conditional honors. Such promi-

nence was accorded the practice of dentistry as a specialty, that as early as the year 1700, persons desiring to engage in it were obliged to undergo a special examination.

England, which can now boast of having one of the best systems of registration for the control of dental surgery, gave little attention to it till recently. Tooth jerking was practiced as a superadded means of livelihood by blacksmiths, barbers, watchmakers, and others, in every village and country town; the occupation having apparently no attraction for medical men. Being thus consigned to the uneducated and charlatan, they paraded their speciality with such vigor as to receive the designation of surgeon dentists; a title applied without discrimination to educated or uneducated. About 1840, the attention of the medical profession was attracted to the subject, and legislative consideration was agitated, resulting in the passage of the medical act of 1843. In 1858, the Royal College of Surgeons, established special lectures and a course of examinations for dental students. In 1878, was enacted "by the Queens most excellent Majesty, by and with the advice and consent of the Lords spiritual and temporal, and Commons in Parliament assembled, etc.," the present elaborate act; which provides, that on and after the first day of August, 1879, no person shall be entitled to take or use the name of "dentist" or "dental practitioner," or any name implying that he is a person specially qualified to practice dentistry, unless he comply with the stringent provisions of the act. Violations of the law being punishable with a fine of twenty pounds sterling. Examinations of candidates are held at stated intervals by a board of examiners appointed under the act, and none are admitted to its privileges unless amply qualified for the responsibilities of the profession. Fine and imprisonment is the penalty imposed on any one for procuring or attempting to procure registration privileges either verbally or in writing, or assisting any one in such effort, to obtain the benefits of the act unlawfully. Every person registering under this act is exempt from serving on juries, inquests, and in the militia.

Is this a supernumerary cuspid?—A young lady of about seventeen years lost by early decay the left upper first molar. A few months following a nearly perfect canine tooth was erupted, the root of which, occupied the place of the buccal roots of the former tooth. The crown has not the same chalky, opaque appearance of most supernumerary teeth, but has a thin covering of enamel. The cuspids are all sound and regular, and this additional one is difficult to distinguish from the others, in form, size or color. Was it not an attempt to reproduce the molar?

Sidney, N. Y.

FRED. I. SUMNER.

“WAS IT HONEST?”

BY NORMAN W. KINGSLEY.

In the February number of the ITEMS OF INTEREST Dr. Haskell brings the above query again to the front, and intimates that my former communication in your last May issue applied to Dr. Allport, and asks for the publication of some letter “that the subject may be cleaned up.”

There never was any letter that in the name of honesty or equity could make the transaction referred to appear in any different light than my relation of it in your May issue. Every statement of that communication is absolutely true.

During the recent great meeting of the First District Dental Society, in New York, I was informed that the gentleman referred to desired that I would overlook the past and let by-gones be buried. The following was, and is now, my reply: “I consider that Dr. Allport has done me a grievous wrong, and in doing it, he has dishonored our common profession. His views and mine are totally irreconcilable, but I make this proposition: that the differences shall be decided by a jury of our peers chosen from dentists. He shall name one, I a second, and those two choose a third. These three together, with Dr. A. and myself, shall enter a room and, Dr. A. and I, shall there pledge ourselves to be bound by the decision of that arbitration whatever it may be, and as soon as the arbitrators have obtained all the information they desire—we retire; and the past is forever buried.” I for one will abide by that decision even if it humiliates me—and this is my ultimatum; but to be binding must be accepted without unnecessary delay.

IMPLANTATION.

DR. JOHN G. HARPER, ST. LOUIS.

EDITOR ITEMS OF INTEREST:—Every dentist who visits my office wishes to see the Implanted Tooth in my assistant's mouth. Those who cannot see any of these cases, would no doubt be edified by a report of them, this is what prompts me to write the following:

St. Louis is one of the cities favored by Dr. Younger while on his visit east; he arrived here November 13th, and that day implanted a superior left lateral incisor for a seamstress formerly in Dr. McKellop's employ. That case is doing nicely and the tooth cannot be distinguished from its fellows. On November 15th, Dr. Younger gave a clinic at the Missouri Dental College before the students and members of the St. Louis Dental Society. The patient is my assistant; the tooth implanted was the superior *right* second bicuspid and had been out of the mouth for about eight years; it was implanted in the place of the superior

left first bicuspid, which had been lost for nine years. The tooth has never given any trouble, no inflammation followed the operation, the gum healing by first intention.

Previous to Dr. Younger's visit, I had on October 1st, implanted a tooth for a lady patient. The tooth inserted had been out of the mouth for twenty-four hours; it was a superior left second bicuspid and was placed in the former home of a superior left second bicuspid which had been extracted fifteen years previous. I saw this tooth on February 1st, just four months after being implanted; it was behaving nicely, and had never given the least trouble.

My second case was implanted on January 26th, in a clinic at the Missouri Dental College. The tooth implanted was the superior left second bicuspid and had been out of the mouth for a month; it was implanted in the place of the superior left first bicuspid, lost five years ago. This case is doing nicely, and gave no trouble after the operation. These are the only teeth implanted in St. Louis, and are all firm in the jaw. They can not be moved by pressure, like normal teeth. The opinion of those who have given attention to implantation, is that the teeth and process become ankylosed and thus are held in place.

As time will test the value of this novel operation, it is the duty of those who have cases to keep the profession informed regarding their behavior.

CORUNDRUM WHEELS; TO MAKE, FACE, OR STRAIGHTEN.

DR. W. D. BAUGHN, MILFORD, MICH.

To face or straighten, place the wheel between two pieces of glass, and hold between pleyer points that will press over the center of the wheel that the pressure may be even; now hold in boiling water a few seconds and your wheel will press down as smooth as the glass itself. Be careful not to press very long and hard, or your wheel will thin out and become larger. Always wet your glass to prevent sticking. To make new wheels, cut a hole in a piece of leather or rolled lead the thickness and size you desire your wheel; take a piece of old corundrum wheel, (or prepare new material if you wish,) warm it over dry heat and roll it into a ball and put it into the leather circle, and press between two pieces of glass as above. It will thin down and fill the circle, and will be as smooth as the glass on the sides. You can run a hot excavator shank through the center for the hole, and cut off the protrusions with a knife, or grind it off on the emery wheel. For different wheels take different shaped pieces of glass, for instance two watch crystals. You can thin out the material and cut your wheels with dies or tubes if you desire. If you wish to make something stronger than corundum and shellac, take dental rubber and dissolve it

in naphtha, and stir in your corundrum or emery. Place your glass and lead in plaster in your flask; when the plaster hardens, separate and put in your emery, and vulcanize. Be careful about the heat, as rubber burns easily between glass, as the water cannot get to it freely. The naphtha should be allowed to evaporate before using.

CAUSES OF FAILURE IN FILLING.

DR. A. J. WAID, MONMOUTH, ILL.

The article in February ITEMS, by Dr. Cushing, on "Causes of the Failure of Fillings," is first rate. I endorse it all. Allow me to add a few thoughts. In filling ordinary proximal cavities in an upper incisor, use velvet gold cylinders without any annealing. Push the first piece to place and partially pack with foil carrier to the opposite side from where introduced at the cervical margin. Now place at its side another cylinder, and as large as may be without tearing it. Mallet the two down with as large a plugger as convenient. Place in two more the same way and before malletting allow the ends of the cylinders to protrude a little, near the last; one cylinder at a time will answer. Do not yet condense the outer ends of cylinders. When the cavity is so nearly filled that you have only enough room to put in a round right and left plugger, cut some No. 30 cohesive gold into narrow strips $\frac{1}{8}$ inch wide and less, and 1 inch length. Commence with the narrowest strips annealed and fill the remainder of the cavity, using the right or left small plugger. Now lay a strip of annealed gold over the ends of projecting cylinders and mallet, fill out with cohesive gold as far as you wish,—the upper part first with a foot-shaped plugger, and so on down, for you can fill quite to the other tooth without having teeth wedged apart.

The fact being known that I do not wedge teeth apart has increased my practice.

THE TEMPTATIONS TO MALPRACTICE.

DR. G. W. ADAMS, BRISTOL, PA.

It was said some years ago, "No man can go to Heaven, who fills front teeth with amalgam!" So averse were our best gold workers to the use of the "nasty stuff." But the times since then have greatly changed; and we find some, if not all, of our best operators doing now that very thing. But amalgams have been greatly improved since the utterance of that fiat. I never took much stock in that direction, but always believed that if I did the *best I could*, that was as much as would be required of me, and others must look out for themselves. What troubles me far more, is the temptation to yield to the whims and opinions of my patient. We practice dentistry to make money—not

wholly as a labor of love. If we don't do what the patient wants done, he has no need of our services and we can "sell out." A case in practice will illustrate. A young lad called with toothache in right second lower molar. It had a cavity in the mesial surface filled with cotton. The nerve had recently become exposed. The tooth was white and clean and fairly healthy-looking. The first molar was dead and black, had two or three fillings in it and was abscessed. The boy said, "That tooth is all right, its been filled, I want the other one out." I took it out. But whether I can ever "be saved" myself, while I yield to the crime of destroying nature's works merely because the patient *thinks he knows* and is willing to pay me for my services, remains to be realized. Still, my services are offered to the public; and, if I won't do what the public want me to do, whither am I drifting? I know we have always been taught to "use our own judgment." Yes, but judgment and self-interest often clash. Then what shall we do? Obey the mandates of the patient and get the fee! Or follow our own discretion and be firm, though we lose patronage, and finally have to close our office and — tramp, tramp, tramp?

AMALGAM BY THE ROTARY METHOD.

[This should have appeared in February ITEMS.—ED. ITEMS.]

So much has been written and said of late, in favor of Herbst's method of filling teeth with gold—with vague hints that amalgam might be introduced into cavities in the same way, that I have been led to try its efficiency as to the last named material.

Considering adaptation of the material to the walls of the cavity and the thorough solidification thereof—essential features of a good filling, this rotary method seems particularly adapted.

Experiments in filling small glass tubes certainly demonstrate its superiority in the above particulars over ordinary hand methods.

It seems wonderful how much force can be exerted with the engine burnisher!

In this way much less mercury is required for the necessary cohesion of the metals. This feature alone may add much to the durability of amalgam fillings.

Shake thoroughly, the filings and mercury in a glass tube (a Williams' gold bottle is good) and without washing or squeezing—fill.

The amalgamation of the metals will be rendered quite complete, in my judgment, during the operation of filling.

Compound cavities should be assisted with the matrix to insure fullness of contour.

The increased density permits a better trimming to shape, and finishing.

T. W. PRICHETT, Whitehall, Ill.

THE PHYSICAL PROPERTIES OF VULCANITE.

DR. GEORGE B. SNOW, BUFFALO, N. Y.

Crude India rubber, when intimately mixt with about half its weight of finely divided sulphur and submitted to a sufficiently high temperature, under pressure, is transformed into a hard substance, somewhat resembling horn in its appearance and texture, which is known as Vulcanite.

The unvulcanized mixture of India rubber and sulphur is a soft, somewhat elastic substance, of a grayish color. Vermillion or other pigments are often added to the mixture to color the vulcanized product.

India rubber in any form is susceptible to the influence of temperature. The unvulcanized gum becomes hard and comparatively inelastic at temperatures below 32° Fahrenheit; and when once in this condition, it remains so till subjected to a temperature of about 100° . A strip of India rubber forcibly stretched has a slightly increased temperature, and when allowed to contract, the temperature is lowered. If a weight be suspended to a strip of India rubber, so as to stretch it, and the strip be warmed, it will contract lineally. It does not, however, contract in bulk by the application of heat, as this would seem to indicate, as it expands laterally; so that its bulk is greater when warm than cold. It is, therefore, not an exception to the general rule, that all bodies expand when heated.

The rate of expansion by heat of crude, or unvulcanized rubber, is not given by any authority to which the writer has access. The expansion of vulcanite is given as .0000467 of its length for each degree for temperatures between 77° and 96° Fahrenheit. The rate is somewhat less for temperatures below 77° , and presumably greater for higher ones. The expansion of iron being taken as 1, that of brass will be 1.67, and of vulcanite 1.67, for the temperatures given above.

The elasticity of India rubber is not caused by its compressibility, so much as to a mobility of its particles. It really yields little to pressure when closely confined. This fact will be illustrated by the following experiment, which will show that its expansive power, when heated, much exceeds its compressibility. As the experiment is easily made, the reader is requested to repeat it for himself, as it reveals some peculiarities in the action of India rubber which are not generally known, and which will prove instructive to dentists:

Let a cube of unvulcanized rubber compound be made of from $\frac{5}{8}$ to $\frac{3}{4}$ inch dimensions. It may easily be built up of squares cut from a sheet of gum. Let it be invested in plaster in a dental flask, by placing it on a bed of soft plaster and immediately filling the flask. There will then be no parting joint, and no escape for the rubber.

Let this be vulcanized after standing twenty-four hours, or long enough to insure a complete and thorough hardening of the plaster. The result is shown in Figure 1.

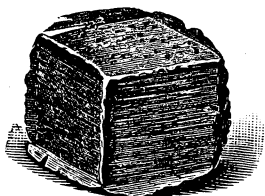


FIG. 1.

It will be observed that the plaster has cracked at each angle of the cube, and a thin fin of rubber has been injected into the opening. The expansive force of rubber, as illustrated above, is one source of the trouble experienced in putting up dental plates. If the rubber is closely confined, a force may be exerted by its expansion which the contents of the flask cannot resist. Broken blocks, open joints between the sections, teeth forced out of place; all these annoyances are caused by the close confinement of the rubber by insufficient gateways, or from their being filled with surplus rubber by careless packing.

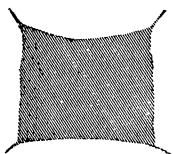


FIG. 2.

Another inspection of this cube will show that its sides, instead of being flat, as they were when it was flaked, are concave. Its section, shown in Figure 2, shows this very plainly. In this case the shrinkage, following the plane of least resistance, took place chiefly on one side—the top; small air bubbles in the plaster retaining the other sides, and preserving them in nearly their original shape. The concavity, being nearly all on one side, is all the more perceptible. The explanation of this phenomenon is simple; the rubber, as it hardened, became more dense, and suffered a sensible diminution in its bulk. This shrinkage is inherent to the process of vulcanization, and occurs with all rubbers, unless vulcanized at such a heat as to render the sample spongy in the center. The manner of vulcanizing makes little difference. Whether invested in plaster or closely enveloped in heavy tinfoil; whether vulcanized under water or in steam; whether the compound be rubber and sulphur alone or largely composed of pigment or other foreign matters; black, red, pink, amalgamated rubbers; the result in all cases is the same, varying according to the amount of foreign matter contained in the compound. Sides of samples which were flat before vulcanizing are invariably concave afterward.

There are, then, two shrinkages to be taken into account in vulcanite; one inherent to its production from the compound of crude India rubber and sulphur, and another, in common with most other substances, from changes of temperature. The two combined are the secret of many of the annoyances experienced in making vulcanite dental plates, from failure to secure proper adaptation. Their bearing on this subject will be discussed in a future article.

Vulcanization consists essentially in the combination of India rubber and sulphur, under the combined influences of heat and pressure. It may be observed, in passing, that it is possible to vulcanize by heat without pressure, but the results attained are not as good. The process is usually attended with the evolution of more or less sulphuretted hydrogen, which has been deemed a necessary concomitant. The following experiment would seem to prove that it is merely incidental, depending possibly on some reaction between the sulphur and steam; the sulphate of lime, which is also present in the dentist's flask, being possibly a third element.

A piece of rubber compound was closely enveloped in heavy tin-foil, and soldered with pure tin, so that it was hermetically sealed. It was then vulcanized in steam at 90 lbs. pressure, without being flaked. If there had been any evolution of gas during the vulcanizing process, it would have been apparent from the puffing of the tinfoil envelop, but this did not occur. The tinfoil was as closely applied to the rubber after vulcanization as before.

Another sample, similarly prepared, was placed in a double chamber vulcanizer, and subjected to the same heat for the same length of time as was the first sample. Steam was not admitted to the vulcanizing chamber, and the blow-off valve was left open; so the sample was subjected to heat without pressure. On removal, the tinfoil envelop was found distended, and a puncture gave vent to sulphuretted hydrogen gas. The rubber compound was not perceptibly hardened.
—*Dental Advertiser*.

The skin.—Dr. M. H. Cryer, in the American system of Dentistry says: In the higher forms of animal life, the skin can be separated into two great divisions,— the epiderm or cuticle or scarf skin, and the derm or carium or cutis vero,— synonymous names for the skin rayars that have much complicated its study.

The *blastoderm* at an early stage of its existenc divides into two layers, the *epiblastic* and the hypoblastic; and a third or mesoblastic layer, divided from the contiguous portion of the epiblast and hypoblast, forms and is situated between them. From the epiblastic or upper layer are formed the epiderm or cuticle of the skin, and all its appendages, such as the hair, nails, the enamel of the teeth, the brain and the nerves. From the mesoblastic or middle layer are formed the true skin, the cartilage, the bones, the muscles, the dentine and camentum of the teeth, etc. From the hypoblastic or lower layer are formed the epithelium of the mucous membrane and the various glands of the alimentary canal situated posterior to or below the palato-glossal fold of the mouth and in the front or above the lower third of the rectum.

DR. ATKINSON ON IMPLANTATION.

I have placed but one tooth in a new socket. Arrangements had been made for Dr. Younger to perform the operation at the office of Dr. Woodward. He did not arrive at the appointed hour, and at Dr. Woodward's suggestion I went on with the case, and had nearly completed the operation when Dr. Younger came in. I am told the patient had no trouble in eating with that tooth from the beginning. I saw it a week or so afterward, and it was then quite firm.

Do you think I know whether a tissue that I see is inflamed or not? I tell you there was not a sign of inflammation around that tooth; there was no effusion whatever in the myxomatous tissue. I am to put another tooth in that same mouth, where the root has been out for a long time—I don't know how long. When we shall have watched these cases awhile it will be time enough to crucify Brother Younger. He is too intelligent and honest and earnest to allow us to ignore what he tells us frankly, and what is supported by fifteen or twenty of the best dental operators on the Western Slope.

I acknowledge that I did not take to this thing very strongly when the reports reached me of these operations, and when I saw and studied it closely I did not really apprehend it. Though the light shone in me, the darkness comprehended it not, till I saw the lady at the Academy of Medicine who had in her mouth one implanted and two replanted teeth; then, I said, I can easily enough believe the rest. That case enables me to form a judgment—a judgment that I respect more than I respect the judgment of many other men on this planet. That is not egotism, but the result of an earnest desire for the truth and to be able to make use of it. In all past history men have attributed power to the tissues that are composed or made up of the various atoms, and they have ignored that thing or essence that we call power that is outside of and behind all these operations.

Ridicule has no part in fraternity. We can only reach the highest grade by treating all earnest men with respect, and by pooling our issues, and not finding fault with new propositions before examining them. If you turn a man round and eye him with suspicion, will you elevate him? But if you give respectful consideration to every earnest and honest effort, it will not be long before you will find there is something in every man that is worthy to be taken hold of and utilized for the general good.—*Cosmos*.

According to *L'Electricien*, M. H. Dunville pledges his scientific reputation to the accuracy of the following observation: "If two glasses of water be placed, one on the north pole of a powerful magnet, and the other on the south pole, in four or five minutes the former acquires a slight alkaline reaction, while that on the south pole becomes slightly acid."

IMPLANTATION--BOTH SIDES.

[Drs. Weld, Clowes, and Allen in Odontological Society—Hill, Brockway, and Perry reply.]

Dr. Weld. I presume Dr. Younger would feel disappointed if he did not meet with some adverse criticism to stimulate him; therefore, I think he will excuse me if I criticise the practice somewhat. I have had some experience in the replantation and transplantation of teeth; have been through the same enthusiasm that Dr. Younger is going through now, and I think he will finally go through the same disappointment which I did. I have replanted between seventy-five and eighty teeth, beginning six or seven years ago; and I do not believe there is now more than one of these eighty teeth in the mouth. I am therefore obliged to condemn the practice, except in places where it is absolutely necessary, in young persons. My knowledge of implantation, from the time John Hunter made a human tooth grow in a cock's comb, and my views of the physiological doctrine of repair, which differ materially from Dr. Younger's, lead me to say that, in my opinion, the practice of implantation is barbarous and worthless. I have read Dr. Younger's pamphlet on the "Implantation of Teeth and Pericemental Life." It is pretty hard to criticise it, for on the first page the gentleman states that it is not free from crudities. Now, a crudity is something raw, something undigested; and *that* the paper surely is. It contains many statements which are unfair and misleading, and many that are purely suppositions and unsupported by a single fact. The paper throughout is sadly deficient in all points relating to the physiological doctrine of repair, so far as I can judge. This practice which has been recommended to us will be discarded precisely as replantation and transplantation were discarded, and for the same reason. Three weeks from to-night I am to read a paper before the First District Dental Society on this subject, and shall do what I can to help Dr. Younger digest a subject which he admits in his paper is undigested, and I will give him the opportunity at that time to criticise me as I have criticised him to-night.

Dr. Younger. I am sorry to say that I shall be three thousand miles away at that time. When I go back to San Francisco it is my intention to investigate this subject with the microscope, and see what that has to say about it. I am not dubious about the result.

Dr. Jarvie. I would like to ask Dr. Weld if the failure of his cases of replantation were not the result of diseased conditions about the roots,—alveolar abscess, for instance.

Dr. Weld. Just the contrary. I became enamored with replantation, and the idea of crowning roots in this connection occurred to me, and I had special porcelain crowns made for the purpose. Probably

fifty per cent of all the teeth which I replanted were healthy teeth and had healthy environments.

Dr. J. W. Clowes. The unique operations shown us this evening are beautiful to behold, and, as illustrated by the presence of an intelligent and refined lady, are calculated to produce a favorable impression. They remind me of some which I saw several years ago when Dr. Weld was an enthusiast in replanting and transplanting teeth. At that time I was invited by him to see the wondrous results of his labors in this peculiar field. Cases were shown of work done months before, and apparently with success. Others were more recent and full of promise, while others still were accomplished in my presence with undoubting faith in their stability. I spent a forenoon in witnessing these results, and formed my opinion of their probable value. A month later, at one of our society meetings, as I entered the room Dr. Weld came up to me, still full of enthusiasm, and said, "In less than five years this will be the universal practice in our profession." "What practice will be universal?" I inquired. "Why, extracting teeth before filling them, inserting crowns on their roots, etc." I replied that I hoped not, for what I had seen at his office had affected me so unfavorably that the practice of those operations was something terrible to contemplate; that I went home after visiting him and scarcely slept at night from thinking of the mistake he had made,—the mischief he was working by his hands, and the influence he might have on others in leading them astray. "Ah," he said, "you make me feel badly." Through courtesy I had refrained from expressing any opinion before, but, approached in this way, I could not withhold it any longer. Five years later I met Dr. Weld, and inquired if he still practiced those operations. "Oh no," he replied; "I have long since given them up; they were all miserable failures." I said, "that is just what I expected they would be." Ever since then I have had a high opinion of Dr. Weld, and consider him a sensible young man,—because he not only had the wisdom to discover what was wrong, but sense and pluck enough to take the right side when convinced of his error.

Dr. Allan. We can look at Dr. Younger's paper from two stand-points. One is the stand-point of fact; and the facts that we have seen to-night show that teeth can be implanted and made for a certain length of time to keep their place. Further than that I would not go with Dr. Younger. From a physiological view I think the practice will prove erroneous and misleading. I think Dr. Younger's description or theory of the way in which implanted teeth are retained in place is open to criticism. I am not aware that any distinct membrane has ever been discovered as lining the lacunæ of the bone; certainly

such a membrane has never been demonstrated as lining the canaliculi of the bone; and there cannot be, therefore, even a minute portion of the pericementum tissue in the new socket that is made. But there can be a plasma thrown out, which will form an artificial cement, as it were, around the implanted tooth, and for a time hold it in place. But, just as certain as the laws of life and death prevail, there is incompatibility between living tissue and dead tissue, and the time will come when the living tissue will throw out the dead, and the implantation will be a failure. There can be no living union between dead tissue and living tissue. The teeth which Dr. Younger extracts and implants into new sockets in the bone have, he says, a pericemental membrane. Underneath that is the cement, which has been out of the mouth for some length of time. Dr. Younger cannot maintain that that is living tissue. The cementum is dead and the dentine is dead. But granting, for the sake of argument, that the pericementum covering is not absolutely dead, the preparation which Dr. Younger applies—the bichloride of mercury—would certainly destroy any remaining life, as it acts directly on the protoplasm. This union that we see is most beautiful, but it is not a living one. Such operations are doubtful at best, and always dangerous.

Dr. O. E. Hill. Dr. Allan has stated that there cannot be union between living and dead tissue. He also states that if there had been any life in the pericementum it could not possibly survive the course of treatment to which Dr. Younger subjected it. I was anxious to learn whether there was any attachment between the gum and the implanted tooth which we have had the privilege of seeing this evening, and I gave Dr. Atkinson my pen-knife and asked him to try to ascertain. He did so, and reported that the gum was thoroughly attached to the tooth. The knife-blade was very thin, and he used it very carefully, yet the lady winced and the blood started in trying to separate the tooth from the gum. Does not this prove either that the pericementum of that tooth possessed life when implanted or that living and dead tissue do unite? I have seen Dr. Younger operate several times, and have each time been surprised to see how carefully, tenderly, and rapidly the teeth were implanted. I wish to call attention to one point in Dr. Younger's practice which seems singular to me. When he implants a tooth he expects it to become, within a week or so, a line or two shorter than it was when it was inserted; he makes allowance for that, and it does become shorter.

Dr. A. H. Brockway. I do not propose to spend time in discussing the question as to whether there is or can be a union between dead tissue and living tissue, but I wish to make this point: Here is an operation performed which is an apparent success. We have statements

that similar operations have been made where success has obtained for as long as twelve years or more. The average of success undoubtedly has been several years, even under the unfavorable conditions in which the operation has been many times performed. Now gentlemen get up and say that this operation can only be a failure. Failure is a relative term. We are all in the habit of speaking of our success in filling teeth. What is the average duration of our fine fillings? I fancy most of us would be ashamed to say, if we knew. It seems to me an operation that promises to endure successfully for at least several years, if properly done, cannot justly be considered a failure. Suppose the teeth are expelled after a term of years. What is to prevent the operation being repeated? Viewed in this way, it seems to me we have practically success in this operation.

Dr. Perry. I think the operation we have seen so well illustrated this evening may be called successful if the teeth last only three or five years. At all events, it would be hard to convince the patient that the operation is not a success. Whatever may be our learned theories, we must not shut our eyes to the accomplished fact which is before us in this lady's mouth. I have seen enough of Dr. Younger's work during the last ten years to satisfy me that, if any one can make a success of these operations, the delicacy and skill of his manipulations will enable him to do it. On general principles, I should be ready to sustain him in his practice of opening the apex, removing the pulp, and filling the root from that end. In replacing teeth I have never managed them in that way, but the idea, which I confess is new to me, is one I should favor. Treated in this way, there could be no chance of leaving any portion of the pulp at the apex to give rise to future trouble.

Solder for Gold or Silver.—Melt in a crucible 3 parts copper; add 2 parts silver; then while stirring add in small pieces 1 part zinc, and as soon as most of the fumes cease, pour. Add 1 part of this solder to 2, 3, or 4 parts silver for a silver solder; the same proportions for a gold solder, according as your plate to be soldered is a high or low grade. This solder is less brittle than most solders, flows easily, and is of the color of your plate. Be sure each metal used in the solder is pure, especially the zinc.

To separate the plaster in flasks, I use tissue paper, wetting it down with brush and water; it is effectual and is done quickly. I often turn both parts with one batch of plaster. You can put on two coats when needed.

Milford, Mich.

DR. W. D. BAUGHN.

USES OF OXYPHOSPHATE.

DR. A. G. BENNETT, IN AMERICAN SYSTEM OF DENTISTRY.

Oxyphosphate is used for three important purposes,—for “inside” and “outside” work, and for setting crowns. It is adapted to “outside” work in soft and badly decayed teeth, or for filling the greater part of all large and deep cavities when the filling is to be completed with gold or amalgam. When used alone as a filling, it finds its most important use in the front teeth of children, where it should be allowed to remain till about the fifteenth year, though it may occasionally need repair. It is equally suitable for bicuspid and molars, except when the cavity extends to or beneath the gum, where gutta percha better withstands the disintegrating fluids; when it is combined with gutta-percha—the latter substance occupying the upper third of the cavity—these two substances show their tooth preserving properties to the best advantage, resisting the two destroying forces—attrition and chemical agents. All cavities, notably those of children’s teeth, should be protected from the action of the phosphoric acid by a varnish lining covering the dentine surface, and which should be allowed five or ten minutes to dry before introducing the filling.

Oxyphosphate is valuable for filling the larger portion of large and deep cavities, to save time, labor, and expense, and to serve as a non-conductor, and as a solid base when gold or amalgam is to complete the filling. Though easily introduced and kept in place in crown cavities while the metallic filling is being built in, there is often difficulty in retaining it in proximate cavities after the undercut has been made. It can be retained with certainty however, while the gold is being introduced, by the following method: Take, for example, a central incisor; excavate as usual, and cut and drill the grooves and pits, and then fill the cavity from one to two thirds full of the cement; which while setting, all should be removed from the anchorage of the cervical wall, and for some distance, also from the grooves in the labial and palatine walls. Now build in the gold till it extends about half way down across the cement, so that this is securely held in place while its lower edge is being removed from the rest of the anchorage. In other words, the lower half of the cement is securely held by the anchorage while the upper half is being covered with gold. This remedy can be used in all proximate cavities.

For setting crowns and attaching bridge work, oxyphosphate has almost entirely superseded other materials, gutta-percha being now little used for that purpose; though amalgam is no doubt the best for the Bonwill and Weston crowns. But for the Richmond crown, the “collar crown,” and other crowns of this kind, oxyphosphate is *par*

excellence; the material and collar or ferule crown must be set with a cement which offers little resistance to pressure, can be readily forced through a very small aperture, and will set promptly and solidly without shrinking; all which conditions are met by this compound.

For setting crowns and attaching bridge work, oxyphosphate meets all requirements, except that it sometimes sets too rapidly, and is often not a little difficult to introduce into the canals. The too rapid setting is controlled by placing the mixing slab and cement bottles on ice, for a few minutes. It is introduced into the canals to anchor crowns and bridge work, so as to prevent withdrawing the material or confining the air, by the following method: The root being properly treated, the canal should be enlarged toward the palatine side, undercut or grooved with a wheel-bur, and then thoroughly dried; the cement mixt rather thin, is now carried up along the palatine side on a tapering piece of orange wood, thus driving out the air, which would otherwise act as a cushion to prevent the egress of the cement.

ST LOUIS LETTER.

ST. LOUIS, March, 7th 1887.

DEAR EDITOR:—Last week was quite an important period in the history of dentistry in St. Louis.

Tuesday, March, 1st 1887, the St. Louis Dental Society decided to get up a medal to be given annually to the graduate of the Missouri Dental College passing the best examination in all branches. The medal is to be called The St. Louis Dental Society Prize.

Wednesday, March, 3d, a number of the Alumni of the above named college formed the Alumni Association of the Missouri Dental College. The annual meeting will be held on the day following the commencement exercises.

The officers for the ensuing year are, President, Dr. G. A. Bowman; Vice President, Dr. Henry Fisher; Secretary, Dr. J. W. Whipple, 29th and Lucas Ave., St. Louis; Treasurer, Dr. A. H. Fuller. All graduates of the college are requested to send name and address to the Secretary.

Thursday, March 4th, the Missouri Dental College graduated the following named gentlemen: E. G. Ellis, Jefferson City, Mo.; Howard M. Combs, Visalia, Cal.; M. W. Pearson, Mexico, Mo.; A. E. Nichols, Los Angeles, Cal.; J. S. Meug, Dover, Mo.; C. H. Partlett, St. Louis, Mo.; S. J. Smith, Mexico, Mo. Howard M. Combs, D. D. S., received the S. S. White Prize for best examination in all branches. M. W. Pearson, D. D. S., received the St. Louis Dental Manufacturing Companys' prize for the best artificial denture.

JOHN G. HARPER.

IMPLANTATION.

PROF. CARL HEITZMANN.

Dr. Younger has demonstrated beyond the least doubt that it is possible to implant dead teeth into newly-made sockets. I am sorry indeed that to this excellent discovery Dr. Younger added some statements which I must contradict. It is a well established fact that tissues that are endowed with life can be connected with other, even widely different, tissues. French soldiers in the Crimean war implanted the tails of rats into their noses, and after the nose and the tail had grown together they cut off the tail and brought the animals to Paris as a kind of novel species of rodent.

How often do we hear of the re-attachment of severed pieces of the skin and smaller portions of the body, by means of sewing them together. Indeed, such things are of daily occurrence in plastic surgery. Everybody knows that the reproduction of lost noses is based on that principle.

It is quite different, however, when we speak of the implanting of a dead body. Will anybody doubt that a tooth that has been out of its socket for months or days, or even for several hours, is dead? I suppose not. And nevertheless such teeth can be implanted. Is that novel? I think not. In previous years, before the improvement in arms, and when rifles were less destructive than now, we have all heard of gun-balls being lodged in the bodies of soldiers and being allowed to remain there for years without doing any special harm. They were imbedded, sometimes firmly and sometimes loosely, and did not produce any reaction whatever. More than that, Billroth, over twenty-five years ago, made experiments on animals by breaking a bone and not allowing a union of the two broken parts. Some weeks or months afterward he opened the fractured part, laid bare the bone, and inserted a peg of dead ivory, by means of which he fastened together both ends of the broken bone. What was the result? The ends of the bone healed and grew together, and when the ivory peg was looked for, some months or years later, it was found diminished in size and corroded. Will anybody conclude that this ivory peg had been vitalized? Do we not know that any portion of the body is capable of encysting a foreign substance so that its presence will be tolerated? The experiments made by Billroth on fractured bones of men gave the same result, so far as the absorption of the ivory peg is concerned. The fact is before us that Dr. Younger has implanted dead teeth. If he claims that a root which is destitute of pericementum in all probability will not be permanently fixt in the jaw, I believe it; but if he says that the remnants of dry pericementum will be vitalized, this is going much too far. In sponge grafting, where we get new tissue to penetrate the

sponge, is any vitalization of the sponge to be looked for? No. The living tissue from without grows into the sponge and gradually destroys it. So far as I can see, from a biological stand-point, the explanation that there is living union between the implanted tooth and the socket is wrong. The doctor implants a foreign body which is surrounded by living tissues; in the latter a certain amount of plastic inflammation may tend to fix the root of the tooth, and the dry, dead pericementum, made aseptic, will play the rôle of a sponge in sponge-grafting, without ever becoming alive again. The same will happen to the root of an implanted tooth that happens to a piece of ivory inserted in the bone. The new growth will penetrate the dead tissue, and the root will grow smaller. I doubt if, in a majority of cases, the implanted teeth will remain firm over three or four years.—*Cosmos*.

LANOLIN.

ITEMS OF INTEREST.—This substance is the fat recovered from sheep's wool, and for some purposes will doubtless prove of value to the Dental Surgeon, owing to one peculiar property it possesses, in common with the well known "Goose-grease," *i.e.*, its power of penetration through the skin and its rapid absorption when applied externally. Unlike goose fat, it is practically free from smell and its value as a vehicle for the application of vexatria and other similar agents, will no doubt soon become generally known.

Lanolin is now an article of ordinary commerce readily obtained at a small cost, and it appears probable that in a short time, it will replace both vaseline and lard as a vehicle for external applications.

London, Eng.

THOS. FLETCHER.

Bad Breath.—In January "ITEMS" for '86, "Student" asks for a remedy for bad breath, not caused from diseased teeth, and in February number I recommended charcoal; since which time others have taken sides pro and con.

Dr. Calder thinks it would injure the mucous coat of the stomach and other organs. Such might be the case, but I don't believe it. If the gentleman never takes in his stomach anything more injurious than charcoal he will be on earth for sometime yet.

It will not be found necessary to use the remedy often, and when the breath is bad on account of a disordered stomach, it is a safe cure. We will admit, there are many causes of bad breath, but Dr. Calder does not enlighten us, but gives us a few remedies to experiment with.

I would say that bad breath when caused from diseased gums and carious teeth can be wonderfully helped by using a mouth wash of listerine. When caused by nasal catarrh it can be greatly improved by keeping the nostrils thoroughly cleansed with tepid salt-water.—G. A. VAWTER, Cambridge, Ill.

THE LABORATORY.

BY L. P. HERKILL.

It should not be a *machine* shop, but adapted to and arranged for the objects intended.

It should be large enough to secure the room needed for all purposes of a dental laboratory; well lighted; easy of access to the operating room and on the same floor.

The *work bench* should be in front of the window, as we cannot work well by a side-light. It should be 18 inches wide, made of thick hard wood plank; of a proper height to sit down at and work easily.

The "gold-drawer" should be 2 feet long 18 inches wide, and 6 inches deep, with the front cut out, in half-circle, so as not to be in the way. In it should be a "gold-pan," 14x10 inches and 1½ inches deep, with a depressed center, perforated with holes; a hard-wood knob in the bench over the drawer to file on. If there is plenty of room a second drawer-knob, etc., for rubber work is desirable. Also a drawer for refuse wax.

The *plaster bench* should be arranged with a hole in the center for refuse plaster to fall into a box below; a shelf for flasks, etc., and tin can for plaster.

A *molding-box*, 18 inches square, 4 inches deep, placed somewhere as a permanent fixture, with shelves beneath for flasks, metal dies, etc.

The lathe should be a permanent fixture on the bench, sufficiently high to stand at, with the best of light, with rack for the various appliances.

The tools should be arranged at the back of the bench, and never in a drawer, so they will be within reach, and a place for each, and *always in place* when not in use. Have in the rack such only as are needed for dental work; if you have duplicates lay them aside till needed.

These suggestions are to enable one to do work systematically and rapidly.

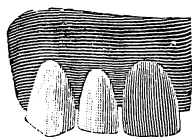
A movable *swaging-block*, to be kept under the bench at the side of the gold-drawer, is made as follows: 8 inches wide at the top; 11 inches at the bottom, and high enough to pass under the bench. Make the bottom of plank and attach heavy castors; a handle to move it by, and rack on one side to hold the hammer; have an iron cube, 6 inches square cast, and filling the box with saw-dust place the cube on it, so it will extend about 2 inches above the top of the box.

It is well to have shelves for plaster casts for metal plates, as they should be preserved, especially partial sets.

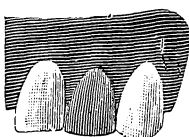
GAS FURNACE, AND GAS FURNACE PRODUCTS.

DR. C. H. LAND, DETROIT.

With the advent of the gas furnace a field of dental art is presented that must eventually claim far more attention than the mere baking of a set of continuous gum teeth. While it may aid and encourage this, the opportunities to produce other effects in porcelain will be in proportion as one to one hundred. A set of teeth at one hundred dollars might be procured by one person out of the same number who would actually need them, while the remainder could not afford to purchase. Thus the majority must of necessity resort to the cheaper base, and it is here where the gas furnace will play an important part.



A.



B.

Fig. A & B illustrate sections of gum teeth changed both in form and color, requiring but a few minutes and a small amount of labor to convert them into

any desired shape, color, size, or position. In this case the left lateral has been changed so as to imitate a dead tooth, also a similar modification is shown in the right central. The work is accomplished by grinding off the anterior surface, reducing the tooth about one-

fifth. Porcelain paste or body is then laid over the



16



17



18



19



20

surface, then an enamel front, or veneer, such as are illustrated in Figs. 17, 18, 19, 20, is pressed on the porcelain paste. It is then ready for fusing in the gas furnace where it becomes thoroughly united. The results are a perfect transformation

into any desired shape, size, position, or color. In addition to this it is easy to transform a plain tooth into a gum tooth, or a tooth of any description may be converted into any style of modern artificial crown. Add to this a series of new effects that I shall designate as

a system of partial crown work which I advocate in all conspicuous places where from one-fifth to two-thirds of the tooth is involved, and in all large contour work. Fig.



1



2



3



4

1 illustrates a molar with cavity, ready to receive the prepared porcelain section Fig. 3. Fig. 2 is a thin piece of platinum plate that has been

burnished into the cavity. This can be done in the mouth by taking annealed platinum plate No. 35 standard gauge. Take a piece of cotton batting made into a hard ball about the size of the cavity, and by means of a blunt burnisher and malleting the platinum can be forced or swedged into the central portion of the cavity; then with another instrument this can be held securely in place, while the remainder can be thoroughly burnished so as to take an impression of the outlines of the cavity. In this manner a perfect adaptation of any shaped cavity can be secured. Platinum pins are then attached using pure gold as solder, see Fig. 2. This serves as a fastening means both to secure the section in place, and as retainers for the porcelain body. Fig. 3 illustrates completed sections, showing contour of the original shape of the last portion of the natural tooth. With two of three shades of porcelain body, and a selection of prepared enamel fronts or veneers, it will be seen what an important factor a gas furnace will become as an aid to art in dentistry.

TREATMENT OF BLIND ABSCESES.

DR. LOUIS OTTOFY, CHICAGO.

The treatment of blind abscesses and the filling of root-canals and the cavities with plastic material, all to be done at one sitting, naturally finds much opposition, it being a radical departure from common practice; however, the remedies now at hand for these purposes are such that in many instances it is justifiable.

Unless free access can be gained to all of the roots, the method is not to be relied on, as cleanliness is the cardinal principle of success. The rubber dam should be adjusted, and the *debris* from the cavity entirely removed before any attempt is made to enter the pulp-chamber. The root-canals once opened, they should never be bored, reamed, or any effort made to enlarge them; but instead, a good supply of fine piano-wire instruments should be on hand. The canals are first *thoroughly* cleansed with ether and chloroform on cotton, never using such large pieces as to cause a pumping action toward the end of the root. These washings should be continued till neither odor nor color is perceptible; however, in roots where the apex is large, which is readily ascertained by the experienced hand, the cotton receives a slight yellowish tinge which does not cease, but this is no bar to proceeding with the treatment. After thorough cleansing, the peroxide of hydrogen is forced in, then the root-canals are again thoroughly dried, and a solution of bichloride of mercury (1 to 1,000) is forced into and beyond the roots. The root-canals are again thoroughly dried, and with cotton moistened with eucalyptol and dipt into iodoform. These two powerful remedies are forced to occupy every available space in and

beyond the canals, and while in that condition, the introduction of a solution of gutta-percha in chloroform, with iodoform (1 ounce of gutta-percha solution, 1 dram of iodoform), is immediately proceeded with. The root one-third or two-thirds filled with it, a cone of oxyphosphate is made, which acting as a piston, is forced into the canals, driving the gutta-percha beyond the root (possibly), at any rate, into every part. The filling (of gold, if not a large cavity), or with any of the plastics, may be immediately introduced. An application of a counter-irritant to the gums is then indicated, which may be either a mixture of equal parts of tincture of iodine and tincture of aconite root; or an iodine paint, which is iodine dissolved in alcohol, four times the strength of the officinal preparation. That either may be effective, the tissue to which this is applied must be dry. The patient is instructed to return within twenty-four hours if troubled. As a general rule, inflammation, sometimes severe, of three or four hours' duration, will follow this treatment. Three precautions should be observed:

1st. Do not select a patient who is lymphatic, anemic, and of such a sluggish constitution that the system itself is not properly supported.

2d. Use nothing but pure and reliable remedies.

3d. Each step must be thoroughly performed before another is taken.

Do not use dull instruments or worn engine burs; in short, do not give unnecessary pain. If the operation requires it, cut. Do not spare the feelings of the patient, if for the good of the tooth. Your patient will hold you in higher esteem in the future for your having done your duty faithfully. Be gentle, yet firm when firmness is required. I once heard a minister, in illustrating a certain point in his sermon, say that he had gone to a dentist to have two teeth filled. While the cavities were being excavated no pain was felt, and after the operation was over he complimented the dentist for his gentleness, and told him that when he needed like services he would call on him again. "But," said he, "I never went back to that operator, for I soon lost one of those teeth, and had to have the other refilled. I learned that he who would not hesitate to inflict pain, if for my future good, was the better friend, also the better dentist."—DR. J. W. DAVIS.

Ancient Dentistry.—Dr. Morrison, St. Louis, says Dr. E. Waller, of Cairo, Egypt, states that no well authenticated case of gold filling has been found in the teeth of mummies, and that the superior cement reported to exist in their teeth has proved to be simply tartar. He adds that the so-called "bridge work" reported to have been found are very crude attachments of artificial teeth by gold wire, and from long use in the mouth are thickly coated with calcareous deposit. They are in no wise comparable with the artificial production of to-day.

LATIN VENDERS.

A STUDENT'S REFLECTIONS.

In the course of a somewhat extended and varied reading, I have often been tried and amused with what I term "Latin Venders," persons who dole out to us the fragmentary Latin which they possess, imagining they are saying something profound. It seems to be the nature of a certain class to act wise and be foolish. While such a nature is more a misfortune than a crime, it is trying to those who wish to understand what is written, and must refer to some book for its meaning, and then perhaps to find an evidence of the writer's ignorance. No other language is used in this way, except perhaps the French; and even with that language foreign words are few and have become French by use. In German, if in writing an article, I say, "Ich habe Keine Zeit," how many people besides Germans, or others acquainted with that language, could come within forty rods of my meaning? Would it not be a ludicrous combination? But if I say "I have no time," I have stated a fact clearly. When a person is writing in English, if he uses only that language no possible fault can be found with him, but if he uses a Latin phrase here, a Greek there, a Hebrew somewhere else, and a French or German in another place it becomes a polyglot, to be read by no one but a linguist. Let a man's style be easy, free and lucid; he has no use for other languages to illuminate his ideas. No foreign term can shed light on a single sentence. It only serves to mystify, confuse and vex the patient truth-seeker who reads for profit, and not merely to say "I have read." If a writer stops to explain the term, as many writers do, he only shows the quotation unnecessary, and displays the cloven foot of egotism. If the writer's style is not lucid and self-explanatory, certainly he cannot better it by the free use of Latin. Were I an excellent German scholar I should *never* think of dotting my English compositions with German phrases and idioms. Yet it is a living language spoken and written by millions, and of good report even in this country, the stronghold of our own beautiful English. The Latin language is dead. It has no part in the every day affairs of life. We may read a few books of pagan heroes and study histories of pagan nations, but all results in nothing but barren idealities. Where nothing is, there nothing can be found. But a living language contains living, precious gems of thought, pertaining to our own age. Foreign phrases are frequently used simply to conceal deficiencies of style and lack of knowledge of our own beautiful language. A writer who is clear yet simple, elegant yet plain, strong yet correct, needs no Latin to becloud and mistify his sentences.

SUGGESTIONS ABOUT ARTIFICIAL TEETH

The *ITEMS* came yesterday, so last evening I carefully read it through. It is a wonder to me how you manage to publish so much good common sense for so small a subscription price. The article on "Mineral Teeth—Needed Improvement," is excellent.

I have often wished that manufacturers of artificial teeth, and their assistants who place them on cards for the market, had a little more time, or a little more something, so that fewer mistakes of theirs would obtrude on our time and attention to vex us. In block teeth I sometimes find the bicuspid blocks both for one side; and often the lower sets are not in proportion in size to the upper.

The joints have to be ground much closer in the lower set than the upper to make them antagonize well. I sometimes find the upper molar block on the card of a lower set. I am careful that the lingual cusps shall antagonize as well as the bucal; to do this and set the teeth inside of the *base*, I often have to grind the outer cusps of the lower set because the lingual cusps are too short.

Tabor, Iowa.

Dr. J. F. SANBORN.

Saliva and The Teeth.—Leaving out of account, for a moment, the difference in the resisting power of teeth, and also the amount of care used to remove food, we must seek in the oral fluids for the causes of this difference. It has been stated that acid eructations from the stomach are a cause of decay, but I do not think this a factor of importance. Saliva has many functions, the most important of which is its protective action on the teeth; for when saliva is normal it is difficult for teeth to decay. It prevents decay in two ways,—first, by washing away the acids formed in fermentations; second, by combining with these acids, making them harmless. Normal saliva is alkaline, not neutral, as has been many times stated. A neutral or acid saliva in man is pathological. These facts cannot be too strongly emphasized. For a short time, early in the morning, the saliva may be acid, but this is due to carbonic acid, and soon disappears.—W. H. ROLLINS, Boston.

To make a convenient broach and broach-holder, take half of a broken excavator; drill a hole into the end of it just large enough to admit ordinary piano-wire; cut the wire the length desired for a broach; drive it into the hole till it is held firmly; the wire can now be filed to any thickness desired. The point may be left smooth, or can be hooked for a pulp-extractor. There is less danger of breaking such a broach in the canal of a tooth than any other I am familiar with.

—*Dr. W. O. Kulp.*

MEETING OF DENTAL FACULTIES.

At the third regular meeting of the National Association of Dental Faculties held at Niagara Falls, August 1886. The following Colleges were represented :

- Baltimore College of Dental Surgery.—R. B. Winder.
- Ohio College of Dental Surgery.—H. A. Smith.
- Pennsylvania College of Dental Surgery.—C. N. Pierce.
- Philadelphia Dental College.—S. H. Guilford.
- Missouri Dental College.—W. H. Eames and A. H. Fuller.
- Boston Dental College.—J. A. Follett.
- State University of Iowa, Dental Department.—L. C. Ingersoll and A. O. Hunt.
- University of Michigan, Dental Department.—J. Taft and J. A. Watling.
- University of Pennsylvania, Dental Department.—James Truman.
- New York College of Dentistry.—Frank Abbott.
- Kansas City Dental College.—C. B. Hewitt.
- Chicago College of Dental Surgery.—T. W. Brophy and A. W. Harlan.
- University of California Dental Department.—S. W. Dennis.
- Vanderbilt University, Dental Department.—W. H. Morgan.
- Harvard University, Dental Department.—Thos. Fillebrown.
- Minnesota Hospital College, Dental Department.—W. A. Spaulding.
- St. Paul Medical College, Dental Department.—L. W. Lyon.

Dental Text Books.—Prof. Winder, Chairman of Committee on Text-books, at the last meeting of the Dental Faculties, reported verbally that his committee had decided not to proceed farther till a conference of the faculties of all schools could be had. It now appears that there is a stronger sentiment in favor of providing a uniform system of text-books for the colleges, and the committee recommend that such steps be taken as will insure the early completion of the work. The report was then fully discussed and accepted and the committee discharged.

Prof. Guilford's motion, as amended by Prof. Winder, "to elect by ballot a committee of five to consider the general scope and plan of the proposed text-books, the committee to report during the present meeting," was adopted.

The committee was subsequently elected as follows : Professors Abbott, Winder, Guilford, Ingersoll and Fillebrown.

The committee reported :

"That text-books are needed on the following subjects : Oral Surgery, Dental Pathology and Therapeutics, Operative Dentistry, Orthodontia, Dental Chemistry and Metallurgy and Dental Prosthesis.

"That a committee be appointed to solicit the writing of such books, to examine the manuscripts, and if found acceptable, to authorize their publication.

"That the committee on publication of each of the several works consist of the professors of that branch in each of the several colleges.

"That each author shall retain the ownership of his manuscript and publish such work at his own expense and risk.

"That the committee on publication have power to select writers for their subject, and to require them to write on an adopted plan and that the manuscript be approved by at least three-fourths of the committee."

DR. W. HERBST IN AMERICA.

To the Editor of The Dental Review:

DEAR SIR: It is with much pleasure that I comply with your wish in giving expression to my views in regard to dentists and the dental profession of America. As you are aware, my journey to the United States was made for the purpose of extending a knowledge of my method of filling teeth among your dentists, and at the same time also to prove that there are dentists in other lands who not only have taken ample advantage of American improvements, but who themselves have taken steps of advancement.

Any one visiting Europe ten or fifteen years ago would have been astonished at the exceedingly imperfect development of the science of dentistry. The mechanical and operative branches were not taught in Universities, and hence had to be acquired in private offices; it is for this reason that a dentist who has passed his examination according to the laws of his own country, lacked much in that practical knowledge which one possessed who had attended but six months at some dental college in the United States.

This is now changed, however, as the German, French, English, Scandinavian and other governments have established dental departments in their Universities, in which the practical branches are thoroughly considered. We are taking advantage of the experience of Americans in educational systems, and on this excellent foundation propose to advance. In a few years we hope to be able to cope with Americans in every field and particular; and, in so far as my acquaintance with you extends, I am satisfied that you will rejoice with us and continue to aid in perfecting our specialty.

Aside from the extraordinary skill and ability with which so many of the American dentists are endowed, I was astonished by the critical manner in which my method was examined and the impartial fairness with which judgment was passed on it.

I departed from your shores with the most pleasant impressions, and to me, the days which I passed among you were days of joy.

Bremen, Germany, *October 6, 1886.*

W. HERBST.

Erosion.—Many cases of erosion are simply the effects of the acid juice of fruits, such as lemons, oranges, peaches, grapes and strawberries. Horticulturists, farmers and fruit-dealers are especially subject to this kind of erosion. Tempted to indulge the appetite all the time, the teeth, particularly the front ones, are continually subject to acid baths. I have seen the disastrous results of "orange-sucking" on the teeth of Northern visitors to the groves of Florida. In many instances the enamel was entirely gone from the teeth, exposing the dentine, and gold fillings were standing a line above the surrounding tissue. Patients should be warned against this promiscuous and constant indulgence in eating fruit, and advised to keep in pocket carbonate of magnesia, so that a small piece may be handily put in the mouth after each orange, peach, etc.—*B. H. Teague*, in *Southern Journal*.

Dr. J. R. Knapp's Bridge Work and Gold Crown seems to meet with signal favor among dentists. He was the subject of complimentary resolutions by the late Louisiana Dental Society.

Practical instruction about the teeth, noticed in February ITEMS, Dr. Holbrook says, is out of print; though the Wisconsin Dental Society may reprint it at some future time.

Dr. J. R. Knapp, of New Orleans, exhibited before the Louisiana Dental Society an effective device for combining nitrous oxide gas and the common illuminating gas for producing an intense heat through the blow-pipe.

Ed. ITEMS:—Will you allow me to request those of your readers who will assist in the Dental and Oral Section of the International Medical Congress, to furnish me with an abstract of their papers, or the papers themselves at once?

These papers must be in the hands of the secretaries as soon as possible, that a definite program may be arranged, and a proper amount of time apportioned for each subject.

29 East 20th St., New York City.

E. A. BOGUE, Secretary.

OROVILLE, CAL., March 3d, 1887.

EDITOR ITEMS:—Can some of your readers tell me how to make a plate stay in a mouth when the roof is porous? There are no teeth or roots to which to attach the plate. The patient is a young man of twenty years. He lost his teeth from salivation.

Oroville, Cal.

T. B. KEY.

AMALGAM.

Dr. A. G. Bennett, in the American System of Dentistry says: In spite of its ignoble nature, and in defiance of some prejudice and much opposition, amalgam has steadily won its way, till it is indorsed and used, to a limited extent at least, by many of the best operators. Though amalgam cannot be regarded as a specific for the arrest of caries, it is, with all its defects, the most durable plastic the inventive skill of the profession has produced. No condition or position of the teeth and cavities precludes its use, as it sets almost undisturbed by the presence of moisture; and on the score of comfort and economy to the patient nothing more could be desired. Its limitations, however, are often ignored. It may be said in general that amalgam, with all its real and alleged defects, including mercury as its essential ingredient, is to operative dentistry what vulcanite is to prosthetic dentistry. Both dispense with the highest skill, and lower and cheaper dentistry; but bring it within the reach of those who could not otherwise avail themselves of its service. It was opposed from the first, not because it failed to preserve teeth, but because when it preserved them best it discolored and disfigured them most; and it still often contains metals that have not been proven to be harmless, nor is it surprising that a material that saved teeth by destroying their beauty should have encountered decided opposition.

A Great Worker.—We have often wondered how it was that Dr. Gorgas, editor of the *American Journal of Dental Science*, Dean of the Dental Department of the University of Maryland, author of "Gorgas' Dental Medicine," editor of "Harris' Principles and Practice," etc., accomplished so much work. One of his ways, we have learned, is by working till 3 A. M., which has been his custom for years.—*Archives*.

We think this a foolish waste of energy. As for ourselves, we can accomplish much more, and do it with less exhaustion, by making the day end at 10 o'clock, and beginning it at 4.30 or 5 in the morning. And contrary to the common notion that to read and write in bed is injurious, we have for twenty years, generally retired at 9 and read till 10, and in the morning, washing, returned to bed, and read or wrote till breakfast time.—ED. ITEMS.

What an intellectual and professional feast is this?—
Ed. ITEMS.

DENTAL RECREATIONS.—Another "Smoking Concert" was given on 21st January, by the Students' Athletic Club of the London Dental Hospital. Like its predecessors, it was very successful, the *repertoire* being excellent, and effectively rendered.—*Brit. Jour. Den. Science*.

TO TEST THE PURITY OF COMMERCIAL COCAINE.

F. Hartge, in *Der Pharmaceut*, says:

1. Heated on platinum foil, it volatilizes without residue.
2. Solution of muriate of cocaine reacts neutral.
3. Sulphuric acid must not produce any color.
4. Main reaction: If a drop of a two per-cent solution of permanganate of potassium is added to a solution of cocaine (0.02—0.05) it is colored red. Continuing the addition of permanganate solution, drop by drop, a red precipitate of permanganate of cocaine is formed; when heated, this is colored brown, and a bitter almond odor must not develop. Cocain from six different manufacturers was examined, and only one—Merck's—was found pure.

Bleaching Teeth.—After the root has been filled, and the tooth is free from tenderness, apply the dam, dry the cavity, and remove all discolored decay. Wash the cavity several times with fresh peroxide of hydrogen, and place a few crystals of chloride of alumina in the cavity (this may be procured of E. H. Sargent & Co., Chicago), moisten them with peroxide, and wait from three to five minutes; wash the cavity thoroughly with water, then apply a solution of thirty grains of borax to the ounce of water, till the acid is entirely neutralized. Dry the cavity with hot air, and paint the interior with copal-ether varnish. When it is dry, mix oxychloride of zinc of the desired color, and fill the cavity; allow it to harden, then prepare the cavity for gold filling, and fill at once.—*Dental Review*.

If some one would manufacture the old loop instead of pin tooth, (or what would be better, both ends looped, in the porcelain and out,) it would be of great advantage; as, after the teeth were set in the plaster and the wax removed, the loops could be twisted half way round, and a cord of fine wire drawn in which would entirely prevent the plate from splitting and the blocks from pulling off the rubber. If the loops were solid rings they could be of fine wire, as large wire chips the porcelain when moved or bent.

W. D. BAUGHN.

Milford, Mich.

In using the elevating forceps in extracting under third molars, a piece of sheet tin or other substance should cover the back edge of the second molar to prevent its fracture.

Can any reader of the ITEMS give a method of packing black rubber so that it will not get right up and crawl out of the flask faster than it can be packed in?

BLACK RUBBER.

For Our Patients.

ARTIFICIAL TEETH.

To Patients.

The question first to be settled is, Who is to judge what is natural? Certainly not the patient, who has been without teeth for a long time, nor members of the family, nor intimate acquaintances, who have become accustomed to their appearance without these important organs.

It is a principle well established by experience, that a deformity, even hideous in its character, will, by daily intercourse, cease to attract notice. Take, for example, cross-eyed children; how seldom do parents notice this deformity so forbidding to strangers.

What consternation pervades the family circle when one of its members returns from the dental office having had his teeth extracted preparatory to an artificial set, while even yet the cheeks and lips are partly kept in place by the alveolar processes or sockets. A few weeks will suffice to reconcile the family to the disfigured countenance; and as the alveolar processes gradually absorb, and lips and cheeks shrink, the family as gradually come to look on the face as natural.

The patient again visits the dental office to have the artificial teeth inserted. Who now is best able to judge how the teeth should be arranged to restore the harmony of the features, the patient and accompanying friends, or the dentist, who, perhaps has not seen the face since the day the teeth were extracted? *We answer, the dentist.*

By dentist we do not mean every man who sticks two boards out against a building, in the form of a triangle, on which is gilded the word "*Dentist*"—but one who is a dentist in fact, and has studied the harmony of features; who, having the cheek-bones, nose and chin as guide marks, can fill out the mouth to harmonize with them; who, having observed the complexion of the skin, the color of the eyes and hair, and the age of the patient, can select teeth of such size, shape, and color, as he finds nature gives in similar circumstances.

The judgment of the dentist should be respected, and then, after sufficient time has elapsed to wear away impressions created by the absence of teeth, and an acquaintance has been formed with the altered expression, if the friends and acquaintances do not become reconciled to the denture, the dentist is responsible. On the other hand, should the patients presume to dictate how the teeth should be arranged, what should be their color, shape, and size; in other words, should they presume to occupy the position both of patient and of dentist, pro-

ducing, as it certainly would, an unsatisfactory result, the responsibility would be their own, and any after change would demand a corresponding fee.

However great the anxiety of the patient may be as to the final result, it cannot exceed that of the dentist, for on its successful issue depend his interest and reputation. Our advice then is, secure the services of a competent dentist, and then implicitly rely on his judgment.—*Allport's Dental Journal*.

HEAVEN UNDER GAS.

A lady was etherized for a surgical operation. She fainted, and nearly died. But finally revived and got well. Afterward, she told what *beautiful sights she saw*! She looked into an open gateway, and beheld the most brilliant prospect; everything was light, and bright, and golden; and rich, and sweet, and clean, beyond comparison. Nothing in this world could approach its grandeur and magnificence. No conception of the mind could grasp the greatness of the splendid scene before her at the time. This sight, however, was evanescent, and soon faded from her view.

Her friends fought off the messenger of death, and she was restored again to life and health, and lives to-day, as a returned voyager from beyond the confines of this mortal existence. She often speaks of having "been to heaven,"—of the sublimity and beauty of that blessed abode, wherein everything was grand and handsome, and all was happiness and love.

Clay for Rattle-snake Bite.—A colored boy at Newbern, N. C., was bitten by a rattle-snake the other day, and their being no doctor accessible, his companions dug a hole in the ground and placed both legs in it up to the hips, packing the mud securely around him. The poison was extracted and the boy is now about well.—*Exchange*.

Strikes are quite proper, only strike right;
 Strike to some purpose, but not for a fight;
 Strike for your manhood, for honor and fame;
 Strike right and left till you win a good name;
 Strike for your freedom from all that is vile;
 Strike off companions, who often beguile;
 Strike with the hammer, the sledge and the ax;
 Strike off bad habits with troublesome tax;
 Strike out unaided, depend on no other;
 Strike without gloves, and your foolishness smother;
 Strike off the fetters of fashion and pride;
 Strike where 'tis best, but let wisdom decide;
 Strike a good blow while the iron is hot;
 Strike and keep striking, till you hit the right spot.

—*Mail and Express*.

When in California, a man came into the office with his face bandaged. He showed the sore on his face, with bone protruding from it. The dentist in whose office I was, told him it was a tooth. The man went away, because eminent surgeons who had treated him told him it was the angle of the jaw. He had paid them about \$3000. He came back, and the tooth was extracted, effecting a cure. The dentist charged him \$300, which he refused to pay, but the courts decided he must pay it.—*Dr. J. R. Callahan.*

Man's weight in a body of 150 pounds is divided into about 27 pounds skeleton, 60 pounds viscera, and 63 pounds muscles.

THAT NAUGHTY DENTIST.

It was a pretty room,
 A pretty man was there;
 He beckoned me: "Come in; come!"
 Neatness was everywhere.

I entered; and in accents faint,—
 With fear to tell the truth,—
 I stammered my complaint,
 And sobbed, "Please, sir; my tooth!"

With winning eyes, said he;
 "Come here, my pretty pert;
 Sit down, and let me see—
 Just see, what makes it hurt!"

As meek as any lamb,
 I took that pretty seat;
 I thought of only balm,
 To cure that painful beat.

That thump, thump, thump of pain
 Had almost made me wild—
 Oh! Oh!! Oh!!!—That horrid man
 Has pulled my tooth!—"Poor child,"

Said he:—The brute! The—the—
 Words failed me; so enraged
 Was I, I could not see
 Or speak: I only waged

A war of sighs and screams
 And hits and kicks and springs,
 Until to me it seems
 I took on lightning wings.

I flew as from the devil!
 I thought I saw him sure!
 O my! what speed of travel
 To flee from that dire woer.

T. B. W.

Editorial.

CONSERVATIVES AND CRANKS.

The conservative is one who desires to maintain the existing order of things; a crank is one who does things in some unusual way, disapproved of by the masses about him, and who would change many established notions and customs.

Quite opposite characters, yet both necessary to the world's good. Cranks get more kicks, but the conservatives who give them deserve the more. Perhaps the good time made by these cranks in their forays against folly, evil, and stagnation, is often accelerated by these kicks; and their reflex action, in waking up the kickers, is quite as useful. One thing sure, cranks are not spoiled by flattery, which cannot always be said of conservatives.

What a catastrophe if we were all asleep? Better be a conservative than be asleep, though it is still better to be a crank. Wake up if you have to get mad to do it; kick somebody if it must be so to become aroused yourself, though it is much better to be kicked. Some men, though they may not be asleep, are like offensive pools, which breed all manner of noxious poisons because stagnant. Idleness is worse than uselessness. Even to act conservatively needs thought, judgment, and some ambition; it takes more than that—the courage of your convictions—to be a crank. This is the reason there are so few of them. Still, all through history, every now and then we find at least one disturbing the world.

Who was that man who came near being guillotined by declaring “The world is round?” Ah, yes, we remember, it was a crank, and it was the conservatives who tried to kill him.

Who led four centuries out of religious darkness into a grand light? It was Luther, whom the whole world called *The Crank*, till his progeny became so numerous that religious conservatives called them all Protestants.

Who was it, about one hundred years ago, after studying the tactics of European warfare, pronounced them a system of blunders, and said with a handful of men and his idea of handling them he could flog the continent? The little humpbacked dwarf was laughed at; but after this erratic crank grew into Napoleon Bonaparte the conservatives of all Europe bowed to his genius.

A whole houseful of cranks met in Philadelphia once, and they were idiotic enough to think that a few scattered colonists, almost des-

titute of arms, money and discipline, could whip all England. They actually insulted the grave conservatives by calling them tories. But the fanatical cranks soon flogged the English and the tories too.

Somewhere in history we hear of an aristocracy of conservatives who declared "The black man has no rights the white man is bound to respect." And a great nation said, amen. A few crazy cranks tried to disturb their complacent dreams. "Hush, you are disturbing the peace," said the controlling conservatives, "keep still." But the great crank, John Brown, went right among them, as you would poke into a hornet's nest, and waked them up terribly. Their maddened frenzy brought the black man and the cranks on top.

Now a few cranks have got it into their heads that a whole nation of conservatives can't protect the great Diana of the Devil—Rum! These insignificant fanatic idiots are actually firing their popguns at the great temples of this god, crying, "The saloons must go!" Will they succeed? It must be admitted they are terribly in earnest.

Not long ago the conservatives of the whole English-speaking world were shocked at a crank by the name of Webster. His offense was a few slight simplifications in our spelling, and though the people are adopting them, and demanding more, these conservatives are hugging each relic of orthographic barbarism as though it was their idol. Then Worcester made the hubbub greater by authorizing other changes, such as dipt, dropt, mixt, wrapt, burnt, learnt, spelt, etc. My! what will come of such innovations?

And yet, soberly, who bring about most of our improvements in science, art, mechanics, society, religion and literature? The cranks.

"CATCHING COLD."

If we would avoid "catching cold" and many other diseases, we should remember at least two things: 1st. To toughen ourselves to the endurance of climate vicissitudes. We are all too apt to make delicate babies of ourselves. We try to keep warm in the enervation of idleness, or, at best,—sedentary employment, by extra fires and clothing and close housing, instead of toughening ourselves by frequent cold bathing and thorough rough rubbing, by sun-baths as well as water-baths, by vigorous outdoor exercise and *work* in comparatively light clothing and by much exposure to all-kind of weather. 2d. We must be clothed according to the temperature, and to our condition of rest or activity, of lassitude or vigor, and *invigorate* our system till less clothing than we generally wear will keep us warm.

It is not those who are the most exposed to the vicissitudes of the weather that suffer most from these disorders. The Indian, actually living outdoors, the frontiersman, with the rudest protection, the

soldier, on rough and exposed campaigns, the physician, out at all times of night and day and exposed to all weathers,—do not suffer as much as our delicate human house-plants, that shiver at the least breeze from an open door. There is not the sickness and mortality among poor children playing in the slush and mud with wet feet and thinly clad, much of the year barefoot and sometimes in the rain nearly naked, as there is among the delicate children of the rich, living in close, warm houses, who frighten their mothers into hysterics if their feet have become wet or their clothes damp, or if they have ventured out in the snow storm without muffles and overshoes.

When we were a physician, a delicate, coughing, enervated young lady came to us for treatment that was in despair of another year of life. For years she had been unable to work, and scarcely to take care of her own room, and her physician had given her up as an incurable consumptive. On every change of the weather she was sure to catch cold. “First go home,” we said, “and throw off those corsets and everything that is not entirely loose. Wash yourself every day. Not merely using a little water or a damp towel on the hands and face, but scrub yourself all over, and use plenty of water and good soap. Your skin is perfectly full of effete matter that for years has clogged its health giving breathing tubes; even your face has not been really washed for months. Get out into the sunlight and the rain, and not go sluggishly, but run and jump and dance till you are tired, if it is only for a short time, and then know the sweet sensation of rest. Get hungry, if you have to eat a fourth of what you now eat; exercise and starve till you can eat sensible food and loath the foolish sweetmeats and stimulants you have been trying to live on. Wake up and be a sensible girl and you shall be well. Suppose yourself a child again and play with the poorest children of your neighborhood, and play and expose yourself, as they do. In a month come again.” She came. “Now go to work,” we continued; “hoe, dig, rake, plant and weed in the garden with your brothers, an hour twice a day, with the slightest amount of clothing you can wear, and do it rain or shine, and do it till you perspire. When you come in, after taking a good rest and a good sleep if possible, bathe yourself slightly and rub and scrub thoroughly; then, before dressing, sit in the sun for at least fifteen minutes till you are finally tanned all over from head to foot.”

Of course she became healthier, and stronger, and more cheerful. As the fall weather came on, she became tougher and tougher; her appetite became good, so did her general health and her cough was entirely lost. Rough medicine, but the best for more than half of our effeminate and sickly ones of either sex. Of course we may go to

extremes and kill ourselves. Certainly multitudes are killing themselves by the extreme of laziness, close housing and effeminacy.

ALL OF RICHMOND'S INVENTIONS IN DISPUTE DECLARED VOID.

The United States circuit court, Southern District New York, has just declared all of the patents brought in suit by Dr. A. S. Richmond, and by the International Tooth Crown Company, void for lack of novelty, except the patent Dr. Richmond bought of Dr. James E. Low. The novelty of this patent is "An improvement in dentistry whereby artificial dental surfaces may be permanently fixed in the mouth in place of lost teeth without the use of plates or other means of deriving support from the gums beneath the artificial denture." It is not enough that it is a piece of bridge work, but, to interfere with the patent, it must be a *permanent fixture*, without any portion of a plate or other means of support. The Richmond crown is thrown out of court and all claims of its improvement by Dr. Richmond or the International Tooth Crown Company sought to be protected by this suit.

Is the Tendency of the Shape of an Amalgam Filling to a Sphere? Dr. A. G. Bennett in the "American System of Dentistry," thinks it is, and quotes Dr. J. S. Dodge in his support. Still, he remarks that this is a mere theory, and a theory based on a mere inference. The tendency of fluids and semi-fluids are toward a sphere, therefore amalgam may be, specially if put in the tooth very soft. And, after giving Dr. Dodge's learned dissertation to prove it, Dr. Bennett reminds us: "It remains to add that Dr. Dodge disclaims 'an undoubted belief in this theory, but suspects that it will give place to something less remarkable.'"

Still, men must theorise, even if they have not much confidence in their theories. Dr. Bennett would have no necessity for his theory if it were not for the "bulging out" of some amalgam fillings after they have been inserted. Then we can easily dispose of his theory of spheroiding; for amalgam fillings do not "bulge out." This too, is only "an inference" he makes on "the inference of spheroiding." Occasionally we see a proximal amalgam filling that *seems* more prominent than we left it, and we think it must have grown; and semi-occasionally we have patients come back saying a filling in a grinding surface is so full that the apposing tooth strikes it unpleasantly. Immediately we infer the filling has elongated. How or why we cannot tell, but we don't like to assume any fault in our work. We left it a little too prominent, that is all; and as we cautioned our patient not to bite on it till it became hard, he did not immediately discover our mistake; or perhaps a small piece of amalgam we dropt

into the mouth came in contact with the filling and became attached. We have had patients come back years after the insertion of an amalgam or gold filling to show us "how the filling had grown." But there had been only an abrasion of the tooth; the filling being the harder substance had been less affected by the action of food, acid, or the brush.

False impressions under gas.—False impressions are more frequent under chloroform, but they are sometimes shown under gas. Sometime since a patient made us promise we would extract no tooth after he became at all conscious. There were five to remove. The subject was quite susceptible to gas and was soon under its influence. We were about to commence the extraction when he screamed out fearfully. We allowed the effects of the gas to pass off, when the patient averred that we had not kept our word and berated us terribly because we had hurt him so in extracting his teeth. We assured him we had extracted none, nor attempted to; but he could not believe it. "I felt every one distinctly," said he. He was only undeceived by feeling of the teeth still in his mouth.

Preparing Amalgam.—Theodore F. Chaplin, D. D. S., the editor of the *Dental Office and Laboratory*, in its new form, says: to prepare amalgam, "We pour into the palm of the hand a globule of mercury about as large as the tooth cavity to be filled, and mix with this the amalgam fillings." With such a large proportion of mercury, no wonder he finds all the popular amalgams shrink,—even that made by the proprietors of his own journal. He says he squeezes out the superfluous mercury before filling the cavity; but did he ever analyze his squeezed out mercury, to see what is in it? It is not pure mercury, and if he had gold in his amalgam he effectually disposed of at least a part of it in his cast-off mercury.

In May issue of *ITEMS* will appear a very interesting article on a new method of Continuous Gum Work, with illustrations of a novel arrangement in continuous gum teeth for attaching them to the plate; a patent for which device is pending by the inventor Dr. J. W. Moffitt, and the teeth to be manufactured by The Wilmington Dental Manufacturing Co.

Organic elements.—It is singular that out of the seventy elements in nature, less than a dozen enter into organic substances. In fact, the greater part of the earth's crust and all compounds of animal and vegetable origin, are formed from about a dozen of these seventy elements.

HOW SHALL WE SPELL?

It seems to be generally supposed we have a definite standard for spelling, and to deviate from this is unpardonable heterodoxy. But in fact, spelling is changable, and in a vast number of words we have a variety of spelling, even "by authority." We may spell more than a thousand words differently and yet they will be spelt *correctly*. In several hundred words, Webster himself gives us two or more spellings. Worcester is quite as liberal. There are two thousand words spelt differently either by common consent of good writers, (which is really our authographical standard,) or by the sanction of lexicographers whose business is simply to record what is supposed to be common usage. Even if we confine ourselves to such excellent lexicographers as Webster and Worcester, "Thee may pay thy money and take thy choice," in more than a thousand words; and if we add the lexicographers of England, the variety of spelling is inexplicable.

Those more nearly alike in their authography, and which we generally accept as the American standard, are Webster and Worcester. And yet observe a few specimens of difference in the spelling of these two. We have only space to present a small part of the list:

Amend, amendable, amendatory, says Webster; emend, emendable, emendatory, says Worcester; you may have ambassador. No, says Webster I must commence that word with an e.

Defence, offence, pretence, apostacy, vice (a tool), says Worcester. Defense, offense, pretense, apostasy, vise, says Webster.

Inure, inquire, insure, insnare, intrap, interlace, intrall, inwarp, inwreath, says Webster. Commence all these words with an e says Worcester.

Ballister, councillor, counsellor, driveller, drivelling, duellist, enamelled, enamelling, enameller, groveller, grovelling, jeweller, jewellery, panelled, panelling, quarrelled, quarrelling, tranquillize, woollen, says Worcester. Why these double l's? says Webster; make them all single.

Then, says Worcester, why do you double the l's in bevelled, bevelling, dullness, fulfill, fulfilled, fulfilling, fulfiller, skillful, skillfulness, thralldom, willful, &c.? Make these double l's single. Webster replies: Better yourself spell cotillon and swollen, than cotillon and swollen.

Worcester spells: gayety, gayly, dryer, syenite, and banyan. Webster writes: gaiety, gaily, drier, sienite, and banian.

Ban, bin, bun, banana, bandana, but (a hinge), bur, pur, says Webster. Double all these final consonants says Worcester.

Mould, moulded, moulder, moulding, moult, moulting, guild, guilded, guild, gilding, jaunt, smould, smoulder, smouldering, gourmand, says Worcester. Why this u in all these words? says Webster; throw it out.

Skeptic, skeptical, skepticism, says Webster. I think sc in these words appear better than sk, says Worcester.

Adze, axe, oxe, delphine, synonyme, says Worcester. I think says Webster, the final e is useless in these words, though to please some sticklers I will let them spell either way. But I insert an e final in glycerine. No, says Worcester, I must spell that without the e final.

Papoose, worshiper, worshiping, worshiped, says Webster. Double those p's says Worcester.

Assafetida, biassed, says Worcester. Why double the s? says Webster.

Fuse, teasel, oyez, says Webster. Fuze, teazle, oyes, says Worcester.

Epaulet, parquet, quartet, says Worcester. Parquette, quartette, every time says Webster; though I would give people their choice between epaulet and epalette. Well, then, says Worcester, I will give them their choice between lunet and lunette.

Coalery, coak, says Webster. Spell them colliery and coke, says Worcester.

Guarantee, doree, says Worcester. Spell them guaranty, dory, says Webster.

Hypotenuse, swart, girt, burden, says Webster. Hypothénuse, swarth, girth, burthen, says Worcester.

Accoutre, bistre, centre, mitre, ochre, ombre, econnoitre, sabre, saltpetre, sceptre sepulchre, says Worcester. In all this class of words I prefer the termination *er*, says Webster.

Economics, eolic, eolian, esophagus, homepathic, phenix, palestra, edema, ecuminical, iliad, says Webster. This spelling is altogether to plain, says Worcester; spell them, oeconomics, eolic, eolian, œsophagus, homœpathic, phoenix, palæstria, œdema, œcuminical, œiliad; they sound more "professional," you know. Your ædile and æon had better be spelt edile and eon. Webster replies: I don't like so much Latin in English spelling; your æ or œ in, assafoetida, diarrhæa, diarrhœic foetus, manœuvre, and some others, I will give the people their choice of using or omitting.

Is it *el* or *le*? Webster says mantel, teasel and many other words of this class Worcester says mantle, teazle, &c.

Worcester spells dipt, dript, dropt, fixt, mixt, rapt, snapt, strapt, stript, tript, vext, &c. Webster says we had better continue to spell as when they had two syllables: dipped, dripped, dropped, fixed, mixed, rapped, snapped, strapped, stripped, tripped, vexed, &c.

Shall we write lodgment or lodgement, abridgment or abridgement, acknowledgment or acknowledgement, aid-de-camp or aide-de-camp, malpractice or malepractice, malcontent or malecontent? This depends on whether you spell by Webster or Worcester.

Is it affector or affecter, tormentor or tormenter, vendor or vender, &c.? That depends on which Lexicographer you spell by; so, if by Worcester, you must spell, prunello, strop, rotuno, reconnoissance, maccoboy; but if by Webster may spell, slabber, prunella, strap, rotunda, reconnoissance, maccaboy.

Shall it be sanderac and sumach? Yes, if you spell by Webster; but sanderach and sumack, if by Worcester.

Shall it be foundry or foudery, jewelery or jewelry, wintery or wintry, spiritous or spirituous, clarionet or clarinet, carbineer or carabineer, carbise or carbine? If you will decide which of these Lexicographers you will spell by, we will tell you.

LOOK AT THE FOLLOWING MIXTURE:

<i>Webster.</i>	<i>Worcester.</i>	<i>Webster.</i>	<i>Worcester.</i>
erie	ery	delf	{ delf
benshee }	benchie	demarkation	{ delf
benshie }		demasken	demaskation
bombazet }	bombazette	dependent	demasken
bombazette }		detortion	dependant
boosy }	{ boosy	draught	detorsion
boozy }	{ bousy		draft
bouble	bawble	dribblet }	driblet
bourse	burse	driblet }	
broach	brooch	drouth }	drought
cag	keg	drought }	
campaign	champaign	emerods }	emeroids
chore	{ char	feldspar	felspar
	{ chare	gib	jib
clough	{ cloff	gnarled	{ knarled
	{ clough		{ gnarled
comptroller }	controller	halleluiah }	allelujah
controller }		alleluiah }	hallelujah
cozy	cosy	halleluiah }	
cue	{ cue		
	{ queue		

<i>Webster.</i>	<i>Worcester.</i>	<i>Webster.</i>	<i>Worcester.</i>
height }	height	practice	practise
hight }			
hough	hock	programme	{ program
howdah	houdah		{ programme
hurra }	hurrah	restive	restiff
hurrah }		sack	sac
jail	{ goal	scimiter }	{ cimeter
	{ jail	scimitar }	{ scymitar
jowl	jole	shillalah }	
kale	{ kail	scillaly }	shillalah
	{ kale		
kelt }	kilt	sirloin	surloin
celt }		slush	slosh
mal	maul	snicker	{ snigger
moccasin	moccason		{ snicker
mullein	mullin	somersault	somerset
neb	nib	sprite	spright
palankeen	palanquin	spurt	{ spirt
pappose }	{ pappous		{ spurt
pappous }	{ pappus	swob	swab
pashalic	pachalic	turquois	turkois
pawn	peon	vail	veil
peddler	pedlar	villianous }	villanous
peony	{ peony	villanous }	
	{ piony	villany }	villany
pinch-ers	pincers	villany }	
plough }	plough	whiskey	whisky
plow }		yelk	yolk
polacca	polacre		

The American System of Dentistry.—The second volume is at hand. It has all the evidence of care on the part of the editor, and of thoughtfulness and experience on the part of contributors, that characterized the first volume. Even the variety of subjects discussed is too great to be here repeated. The aim of the editor is evidently to present *a dental magazine* on a large scale; the subjects treated to cover the whole field of dental theory and practice, and each article to be exhaustive. Many such exhaustive articles have appeared in some of our journals, but of necessity reaching through many numbers, so that it has been difficult to study them as a whole. Here they are presented at a single view.—LEA BROTHERS & CO., Philadelphia.

STATE SOCIETY MEETINGS.

Northern Ohio—Cleveland, Tuesday, May 10.

Illinois—Jacksonville, Tuesday, May 10.

Mad River Valley—Dayton, Tuesday, May 17.

Kentucky—Louisville, Tuesday, June 7.

Indiana—Lake Maxinkuckee, Tuesday, June 28.

Pennsylvania—Creson Springs, Tuesday, July 26.

Southern—Old Point Comfort, Va., Tuesday, July 26.

American—Asheville, N. C., Tuesday, August 2.

Miscellaneous.

INDUSTRIAL EDUCATION.

President D. C. Gilman, of John Hopkins' University, gave the opening lecture of the Industrial Education Association's fortnightly course yesterday afternoon, at No. 9 University Place, New York. General Alexander S. Webb, President of the Industrial Education Association, sat on the platform and introduced the lecturer. The hall was more than filled, many people standing all through the talk. Three-fourths of the audience were women, many of them teachers in the public schools interested in the new manual training system.

President Gilman's topic was "Handicraft in Education." He spoke from notes, but in an easy conversational manner, like a teacher to fellow-teachers, as he himself put it. He began by calling attention to the wonderful structure and the power and importance of the hand. The Romans valued the thumbs above the other digits, but now "the rule o' thumb" was only a synonym of weakness. The hand should be restored to its former importance; manual labor, so long looked down on, should be dignified again by being made profitable and in a sense artistic. No member better repays in results the time and attention given to it. The great effort of every laboratory was to extend the power of the hand and the power of the eye. And so handicraft and the training of the eye that accompanies it had a place not only in the common schools but universities as well. The training of the hand, in fact, was not simply the training of a simple physical organ. In educating the hand, the brain is reached also. The two re-act on each other and strengthen each other. On the average, the handicraftsman, who cultivates his brain, is the better workman; and the better handicraftsman if a literary man, the more accurate an observer will he be, the clearer thinker, with readier conception and fancy. The hand and eye together are invaluable in the cultivation of the brain.

The rudiments of handicraft, President Gilman continued, may be introduced into the schools with great ease and little cost. For girls and even for boys, there were the needle and the scissors. Cutting and making a dress were the most delightful and rewarding of tasks. Alongside of the scissors and needle were the knife, saw and hammer. And more fundamental than any of these was the pencil. Drawing lay at the foundation of all industrial arts. Its object was not to make pretty pictures, but to master the most precise and vivid language one can use—that of lines and surfaces. And all this could be taught with a limited amount of skill in the teacher himself. The demand for more manual training in the schools did not come chiefly from those who go in for physical culture. It came from the people chiefly, who have always taught from the printed page. Matthew Arnold, Mill, Farrar and other men of letters and research have argued for a freer system of manual instruction. The great defect of education now-a-days was that it taught the young to value the printed book alone, spoiling the eyes with bad light and bad type and neglecting entirely the culti-

vation of the eye and hand. A large part of the shallowness, inaccuracy, slovenliness and vagueness of the present day was undoubtedly due to this failure on the part of school systems to teach the faithful, careful reproduction by the hand of what the mind has thought out.

For a long time, of course, it would be difficult to get the new system introduced into the common schools. Efforts to set individual training afoot have been vague so far, and the school boards were too often over-worked and slow to adopt even the best suggestions. The way out was that of private enterprise and individual effort. Blind asylums, deaf and dumb asylums, even colleges, had at first to be started by private subscription, before the State came to their aid. The ideas must be spread abroad and their value made plain, and after that there would be some hope of enlisting the support of the public school authorities. In the South, the lecturer had heard, there was unusual interest in the new education, and a general recognition of the importance of manual training to industrial progress. In one town he knew of, the school authorities allowed pupils to come during a part of the school day to a private manual training foundation. And this was as reasonable a solution as the Industrial Education Association could have looked for.

As to manual training schools, they should begin with rudimentary work, advancing by stages adapted to the capacity of each scholar. In these rudimentary stages the cost of the teaching should not be too great, nor should too much skill be expected of the teacher himself. Drawing should be the fundamental branch taught. The system of training should be fitted to school hours and school ways, and should be started as auxiliary to the public schools by private subscription. Pamphlets on the subject should be kept circulating and the agitation maintained. Use must be made of the experience accumulated abroad and as many French, Belgian, Swedish and German reports as possible should be translated and distributed here. Above all, the principle should be enforced and repeated that the hand trains the mind, the mind the hand and the eye both. And the result of such training is good from the social, economical, and moral standpoints.

Portable glue, or bank-note cement, is made by the following procedure: Boil one pound of the best glue, strain it very clear; boil also four ounces of isinglass, put the two together in a double glue pot with half a pound of brown sugar, and boil it till quite thick; then pour into plates or molds. When cold they may be cut and allowed to dry, when they are ready for use. They may be carried in the pocket. The glue is very useful for draughtsmen, architects and others, for joining pieces of paper containing drawings, etc., as it immediately softens in warm water and joins the pieces without the process of dampening; or it may be used by softening it with the tongue and applying it to paper.

A school of technology is soon to be established in Atlanta, Georgia. The State has appropriated \$65,000, and the city of Atlanta \$70,000, for the purpose. The city has also pledged \$2,500 a year for the maintenance of the institution. This will be the first technological school in the Southern States. It is an encouraging sign of the tendency of events in the new South.—*Cin. Artisan.*

WHAT MAKES HIM TIRED.

An Interesting Back-log Talk with Solicitor-General Jenks.

"Disagreeable weather," a visitor remarked to Solicitor-General Jenks one day last week. "It is very pleasant weather, I think," the Solicitor-General replied. He was sitting at his desk in the middle of a large third-floor room in the Department of Justice, with a log fire blazing in an open grate before him. The visitor had just come in from a drizzling rain, sloppy streets, and a dark, leaden sky. "All weather is pleasant," said the Solicitor-General, "if you only accustom yourself to think so. All weather is pleasant weather to me. It is disagreeable when you try to make it so. The man who has serenity of soul has no bad weather. I never worry about small things; never worry at all if I can help it, and I generally can."

When the unabridged edition of Webster's Dictionary first appeared (without a definition of the word unabridged), that great scholar, Caleb Cushing, wrote a criticism on the stupendous work, saying that for its size, it had as few errors as could be expected. This puzzled the editors, who asked an explanation of Mr. Cushing's information on the subject of those errors. In reply Mr. Cushing marked *five thousand* mistakes in the volume which had been presented to him, and sent it back.

SACCHARINE FROM COAL TAR.

It is a white crystalline powder, easily soluble in warm water, and it possesses 230 times the sweetening power of the best cane or beet root sugar. One part of this saccharine dissolved in 10,000 parts of water produces a solution of a distinctly sweet taste. All its known combinations have a sweet taste. A substance to which the name "dextro-saccharine" has been given is prepared by adding one part of saccharine to between 1000 and 2000 parts of glucose, and is said to be scarcely distinguishable in taste from ordinary sugar; moreover, it is cheaper than real sugar even at the present high price of saccharine, namely, 50s. a pound. The bitterest quinine solution or acid drink is rendered so sweet by the addition of a small portion of saccharine that not the least trace of the bitter principle or the acid can be tasted.—*Chambers' Journal*.

Mucilage: take of dextrin, 4 parts; powdered gum arabic, 2 parts; sugar, 1 part; water, 12 parts.

Varnish for Metals.—A so-called vulcanized varnish is recommended by the *Zeitschrift für Maschinenbau und Schlosserei*. This is ordinary linseed oil varnish, containing 5 to 10 per cent of sulphur. A solution of flowers of sulphur in hot turpentine oil is prepared, to which a corresponding quantity of linseed oil varnish is added, and the whole well stirred. This mixture preserves metals against oxidation by transforming their surfaces into sulphuric combinations. By mixing vulcanized varnish with non-metallic coloring substances, or with a solution of asphalt, excellent weather-proof paint is obtained for application in any color to metallic surfaces.